

Underwriting the Renovation Wave with Mortgage Portfolio Standards for Energy Efficiency



Portfolio Standards Worked to Accelerate Renewables and Electric Vehicles: They Can Also Promote Home Renovation in Europe

October 2021

About Climate Strategy & Partners

Climate Strategy is a leading policy advisory and consulting firm in areas of climate finance, innovation, energy efficiency investments and the corporate strategies and Government policies required for the Transition to a net-zero emissions economy. For 12 years, the Climate Strategy team has been providing global companies, banks and Governments advice on how to accelerate the economic transition to a low carbon economy. Climate Strategy's chief executive, Peter Sweatman, has authored or co-authored 17 white papers, and is rapporteur to the EU Commission and UN Environment Finance Initiative's Energy Efficiency Financial Institutions Group (EEFIG). Climate Strategy has supported energy transition policy development in Mexico, France, UK and Spain and continues to implement leading low carbon business solutions for global clients. 5 years ago, Climate Strategy launched a subsidiary called Energy Efficiency Capital Advisors which has structured and executed ten energy efficiency placements worth over Euro 60 mm from Iberian cities, companies and buildings for international investors.

About this Report

This report is written by Peter Sweatman, Chief Executive of Climate Strategy & Partners (info@climatestrategy.com). Peter was supported by Mauricio Yrivarren as lead research associate and for graphic design. The report has been built upon the inputs of multiple experts, however the views and conclusions expressed in the report are attributable only to Climate Strategy & Partners, and not to the supporting organizations. The 14 interviews were conducted under the Chatham House Rule, so that the individual survey results were not shared between experts nor are identified here in this report. 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 for Policymakers

Urgent action is required to find €2.75 trillion over the next ten years to upgrade Europe's buildings and bring the building sector in line with the goals of the Paris Climate Agreement. €2.75 trillion is considerably larger than the combined EU budget and Recovery and Resilience Facility. It is also too big for national member state budgets and public banks. More than this, European residential buildings, which are worth €17 trillion, represent around half of European wealth and are home to 220 million households, are underperforming, and are not being renovated at the speed and depth required.

Banks hold €7 trillion of European mortgages and nearly a third of their non-financial lending is backed by property assets. In recent years, these banks have been starting to unlock the benefits and opportunities energy efficiency offers to strengthen the quality of their loan portfolios, foster stronger client relationships, and enhance their sustainability performance. Furthermore, sustainable banking leaders have identified the date when they will have upgraded all of the homes they lend against to EU Energy Performance Certificate grade "A". This report showcases some of these practices and develops a portfolio mechanism for inclusion in the review of EU Directives to make Europe fit to deliver 55% greenhouse gas emissions reductions by 2030 in the building sector.

This report introduces a new regulatory mechanism - a Mortgage Portfolio Standard - which can better align EU mortgage lenders, and mortgaged properties, with the Paris Climate Agreement. Like fleet emissions standards for millions of cars and trucks, a mortgage portfolio standard would require the energy performance of a bank's portfolio of financed buildings to meet specific targets by specific dates aligned with the Paris Agreement. While exact timings and targets will depend upon the location of the buildings and the starting point for the bank's portfolio, mortgage portfolio standards would add resilience to banks' balance sheets, boost energy efficient and smart building renovations, and help deliver the renovation wave and Europe's broader climate goals.

This is nothing if not timely. The introduction of portfolio standards for mortgage lenders is supported by historically upgraded public support to renovation, through the "Renovate flagship" of the Next Generation EU initiative, and from associated national and EU funds. This will support fair and broad access to necessary renovation finance, grants to the energy poor and thereby unlock all the benefits which come with deep renovation for the 35-70 million European households that need these by 2030.

Never has there been greater pressure on financial institutions to address climate risks and align their lending practices with the Paris Agreement. With just 8% of leading bank balance sheets currently aligned with the green thresholds defined by the EU Taxonomy, there is a very long way to go. Mortgages are a considerable part of those aggregated balance sheets, and the mortgage process and relationship is a strong rationalising influence on the otherwise highly fragmented buildings market.

In this context, this report proposes the development of a Mortgage Portfolio Standard (MPS) in the current review of the European Energy Performance of Buildings Directive, supported by information requirements in to-be climate-alignment EU financial regulation. Evidence for this approach is provided by drawing on US and European best practices that were used to promote renewable energy and low emissions vehicles, respectively. This evidence was amplified through stakeholder interviews and validated



through a review of existing research and the mapping of aligned climate reporting and financial initiatives.

The reality is that mortgage lenders are largely absent from the coverage of the Energy Efficiency and the Energy Performance of Buildings Directives. Equally, buildings – despite being Europe’s most valuable asset class – are also largely absent from EU financial regulations. The silo-centric regulatory approach of the past relating to finance, climate and buildings cannot endure in a European Union whose 2030 climate ambition is aligned with the Paris Agreement.

In an EU with stronger energy performance data and information transparency obligations and with the upcoming introduction of mandatory minimum energy performance standards (MEPS) for existing buildings, there must be a clear alignment between buildings and financial sector stakeholders to deliver renovation wave targets fairly and without risk of civic backlash. An initial rush of public grants provided through recovery funds will quickly run dry, and private sector actors will need to pick-up the remaining 90% of building renovations.

Mortgage lenders are the single most powerful and most impacted stakeholder group in the decarbonisation of Europe’s buildings. A well-designed Mortgage Portfolio Standard supported by technical assistance and public guarantees to facilitate additional property backed renovation lending to homeowners from all sections of society can engage with the over 50 million banking customers via their existing mortgage relationships, and new ones, to deliver the EU Renovation Wave.

The current EU Commission fit-for-55 review of climate relevant directives, coupled with a historic level of public investment to build back better from COVID is the right time to implicate financial actors in the buildings renovation challenge. Private sector, and owner-led renovation investments are key to the delivery of the EU Green Deal and using fit-for-55 regulations to align mortgage lenders with the renovation wave is both timely and critical to its success.



Mortgage Portfolio Standard ("MPS")

to be included within:

ART. 10 of the EPBD

A Mortgage Portfolio Standard

Would align with the EU Taxonomy

+

Other EU Financial Regulation

Can accelerate Banks proactive engagement in buildings renovation through a duty of advice and information in:

The Mortgage Credit Directive

ART. 13 & 14

Improved capital treatment for highly energy efficient buildings under

CRD IV





Introduction

It was once said that the world could deliver the same output with 80% lower energy use¹. Nevertheless, low-cost renewables, lab meat and electric vehicles (EVs) have captured the public's imagination of a net zero emissions future. So, as the EU increases its climate and energy ambitions for 2030 the question is: where is the building sector, and especially building renovation to reduce GHG emissions? The answer is "lagging".

Renovation is the art of converting the places where we live, learn, work and play into near-zero energy, or energy-positive components of a net-zero emissions world. Individual buildings are deeply renovated across the EU on a daily basis, but the rate of this activity is far below where it needs to be to enable the smooth, just and cost efficient, energy transition envisaged by most Governments. This is important, as a just climate transition relies on the new employment expected from the "jobs machine which is energy efficiency"². Every Euro 1 million invested in the transformation of European buildings creates about 18 jobs³ in the mostly local SMEs responsible for this work.

To deliver these benefits, the EU Commission proposed a "Renovation Wave" in October 2020 to massively improve the energy performance of buildings. With this strategy, the Commission plans to more than double energy renovation rates over the next decade, and ensure that these renovations lead to higher energy and resource efficiency. Even this may undershoot, but nonetheless in so doing the Commission targets the upgrade of 35 million buildings by 2030⁴, requiring €275 billion of buildings investments per annum⁵.

One key problem is that building owners may simply not have access to (or know how to access) the €2.75 trillion of new renovation investments the Commission envisages, or wish to prioritise that renovation investment in the next decade. €2.75 trillion is considerably larger than the combined EU budget and Resilient Recovery Fund, and is too big for national member state budgets.

This paper develops an approach to awaken the sleeping giants implicated by the renovation wave: **Retail banks as mortgage lenders.** Mortgages already fund 40%⁶ of the value of all European buildings and nearly one third of all non-financial bank lending is backed by property as collateral. While this varies significantly between Member States, with their 220 million⁷ European homeowner customers there are few more appropriate allies than mortgage lenders that are so well positioned to channel the trillions of euros of new investment, alongside technical assistance, into the very assets which house and back their retail clients' prosperity.

Until now, the regulatory environments for buildings and finance have been firmly separate, with different approaches, different legislation, and separate sets of sector stakeholders engaging in different stakeholder-led processes with very different styles at EU-level. This is addressed by the team at Climate Strategy researching and interviewing some of the leaders in European financial institutions and buildings experts to devise an approach to align mortgage lenders' activities with the renovation wave using the successful regulatory models that drove renewable energy and EV growth.

¹ WBCSD. (2009). *Energy Efficiency in Buildings: Transforming the Market*. Retrieved from <https://docs.wbcsd.org/2009/08/EEB-TransformingTheMarket.pdf>

² IEA. (2020). *Over 40 ministers, CEOs and other energy leaders take part in IEA's biggest ever Global Conference on Energy Efficiency*. [Website]. Retrieved from <https://www.iea.org/news/over-40-ministers-ceos-and-other-energy-leaders-take-part-in-iea-s-biggest-ever-global-conference-on-energy-efficiency>

³ Renovate Europe. (2020). *Building Renovation: A kick-starter for the EU recovery*. Retrieved https://www.renovate-europe.eu/wp-content/uploads/2020/06/BPIE-Research-Layout_FINALPDF_08.06.pdf

⁴ European Commission. (2020). *Questions and Answers on the Renovation Wave*. [Website]. Retrieved from https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_1836

⁵ Ibid.

⁶ European Mortgage Federation. (2019). *HYPOSTAT 2019/A REVIEW OF EUROPE'S MORTGAGE AND HOUSING MARKETS*. Retrieved from https://hypo.org/app/uploads/sites/3/2019/09/HYPOSTAT-2019_web.pdf

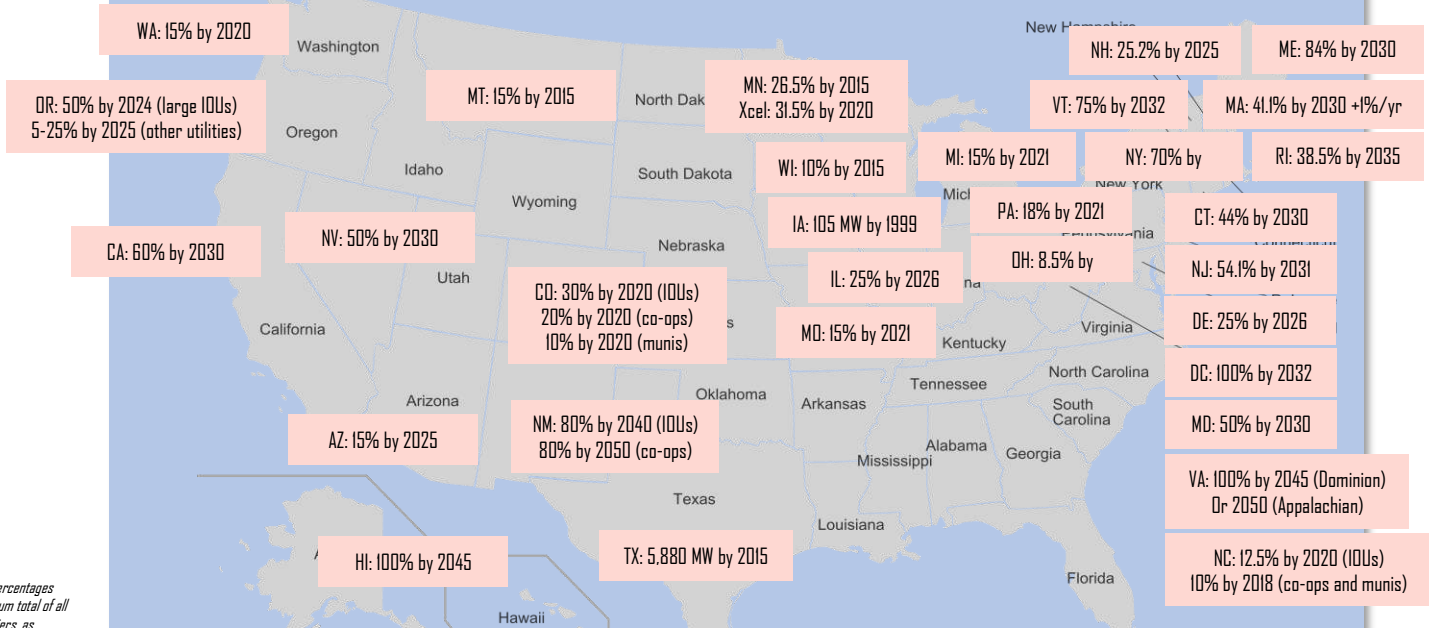
⁷ European Commission. (2021). *The future of cities*. [Website]. Retrieved from <https://urban.jrc.ec.europa.eu/thefutureofcities/affordable-housing#the-chapter>



US Renewable Portfolio Standards responsible for half US renewables build-out

RPS⁸ mandates US retail electricity suppliers to supply a minimum percentage, or amount, of their retail load with eligible sources of renewable energy. Since 2000, RPS requirements have been responsible for close to 50% of growth of U.S. renewable electricity (RE) generation and capacity (82 GW of 174 GW) and exist in 30 US States:

RPS Policies Exist in 30 States and DC - Apply to 58% of Total U.S. Retail Electricity Sales



Interestingly, over the years RPS policies have also triggered renewables growth (about 9GW) in states without RPS. However as of 2019, the percentage of capacity additions due to RPS has accounted for just 23% as lower prices encourage more competition. The impact of RPS also differs greatly between regions, as the design of RPS isn't the same in any two states, with the Northeast and Mid-Atlantic States seeing most recent renewables growth.

Notes: Target percentages represent the sum total of all RPS resource tiers, as applicable. In addition, to the RPS policies shown on this map, voluntary renewable energy goals exist in a number of U.S. states, and both mandatory RPS policies and voluntary goals exist among U.S. territories (American Samoa, Guam, Puerto Rico, US Virgin Islands).

Source: Berkely Lab, 2021

Reading Guide

Chapter 2 briefly describes the methods used to research and assess current best practices to conduct, finance, and promote the energy renovation of buildings and to identify EU regulatory hooks to propagate these at the speed required by EU ambition. Chapter 3 describes the current EU regulatory framework for buildings and finance, which is currently under review to make it fit for the increased climate ambition required to deliver the Paris Agreement. Chapter 4 develops the concept of a Mortgage Portfolio Standard (MPS) for energy efficiency in buildings from the success of Renewables Portfolio Standards for US utilities and fleet emission standards for European vehicle manufacturers. Chapter 5 shows, by illustration, where this approach is already being used to deliver positive change, and Chapter 6 provides a closing summary and some conclusions for policymakers and the lenders themselves.

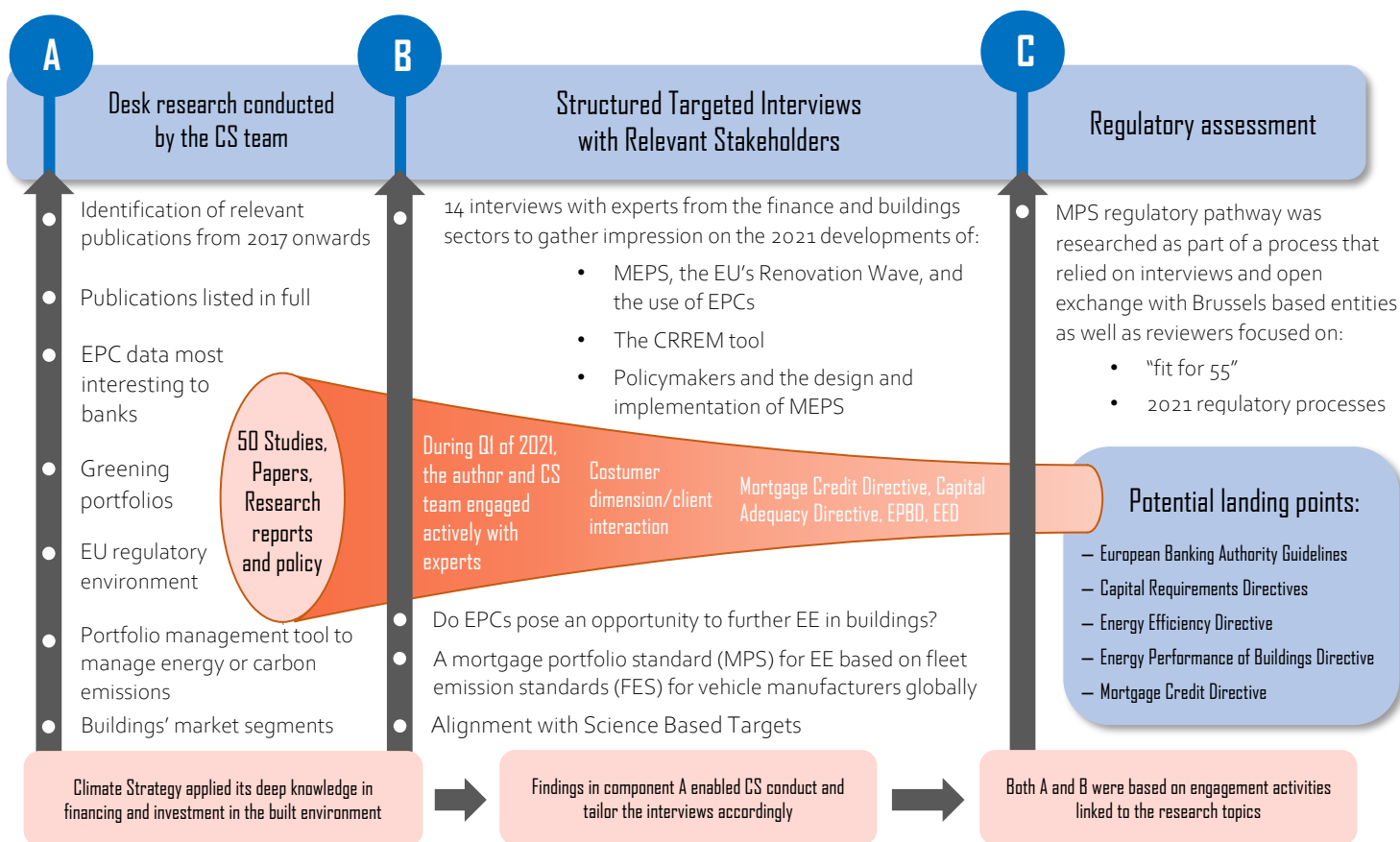
⁸ Also referred to as Renewable Energy/Electricity Standard (RES).





Report Methodology

Climate Strategy & Partners was funded by the European Climate Foundation to explore new approaches to significantly reduce GHG emissions from the existing building stock. This report explores new ways to work with mortgage lenders and align buildings finance with the EU's renovation wave strategy. The approach and thesis applied in this report builds on Climate Strategy's track record of work on financing energy efficiency and buildings renovation at the European, G20 and global levels. It draws upon inputs from a network of experts in the buildings, climate and banking sector, as well as drawing upon elements of the work of the EU Commission and UNEP FI co-convened Energy Efficiency Financial Institutions Group (EEFIG⁹).



This report combines the findings from three key input elements:

1. **Desk research:** The Climate Strategy team cast a wide net to review as many relevant publications since the publication of the G20's Energy Efficiency Investment Toolkit¹⁰ led by the same team in 2017. This process revealed 50 papers and reports which are listed in a full bibliography in the Appendix and which are referenced where relevant in each chapter.
2. **Structured Interviews:** Over 30 experts from the finance and buildings sectors were targeted for structured interviews using a specific structured interview format described below. In the first four months of 2021, the author and his team shared the Mortgage Portfolio Standard concept and questions in advance of 14 bilateral interviews. The interviews provided structured inputs in three areas: 1) Identifying state of the art research and tools to review and inform the work; 2) Testing the thesis and MPS concept for feedback; and 3) Identification of regulatory hooks which could link to and support MPS.
3. **Regulatory Hooks:** Using the interviews and through subsequent exchange with Brussels based organisations and reviewers working on the "Fit for 55", and other 2021 regulatory processes, a regulatory pathway for MPS was researched.

⁹ European Commission. (2021). *EEFIG: About us*. [Website]. https://ec.europa.eu/eefig/about-us_en

¹⁰ IPEEC. (2017). *G20 Energy Efficiency Investment Toolkit*. Retrieved from https://www.climatestrategy.es/en/informe_4.php





Framework and Context

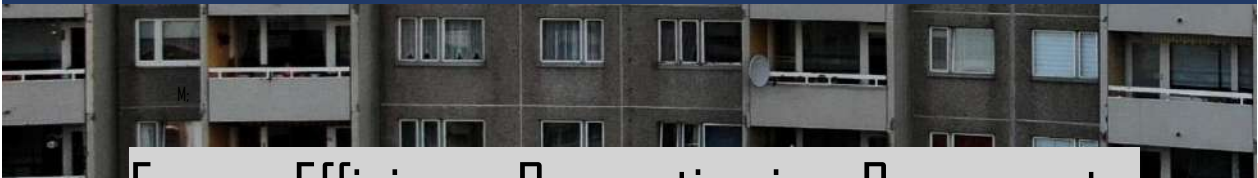


Buildings are core energy users and one of the most valuable asset classes in Europe, and that value is threatened by climate change. Considerable investments are required to elevate their efficiency, reduce their emissions footprint, protect their long-term value and reduce the risk of their physical or regulatory stranding. The lenders for whom buildings back large proportions of their balance sheets are the core implicated parties in the transformation of this sector.

Buildings are responsible for around 40% of the EU's energy consumption¹¹, and 36% of its energy-related greenhouse gas emissions¹². Yet just 1%¹³ of buildings are renovated each year, and just one fifth (meaning 0.2% per annum) of those are considered deep renovations (reducing 60% or more energy demand). At this rate Europe will not be climate-neutral by 2050. Experts assert that 3.5 to 7 million^{14,15} deep¹⁶ renovations are needed annually to meet this objective¹⁷. Current standard renovation practices address just 2.2 million European homes per year and, in 80% of cases, fall short of significantly improving the energy efficiency performance of those buildings. A renewed focus on building renovation will also enhance the quality of life for people living in, and using renovated buildings, reduce greenhouse gas emissions, foster digitalisation and improve the reuse and recycling of materials.

220 mm+ buildings

85% of the building stock was built before 2001



Energy Efficiency Renovation is a Response to:

34 mm Europeans
who suffer from Energy Poverty

¹¹ European Commission. (2020). *In focus: Energy efficiency in buildings*. [Website]. Retrieved from https://ec.europa.eu/info/news/focus-energy-efficiency-buildings-2020-feb-17_en

¹² Ibid.

¹³ SHREC project. (2021). *Renovation Wave Strategy targets European buildings*. [Website]. <https://www.interregeurope.eu/shrec/news/news-article/10397/renovation-wave-strategy-targets-european-buildings/>

¹⁴ EeMAP. (2018). *Creating an Energy Efficient Mortgage for Europe towards a New Market Standard*. Retrieved from <https://www.worldgbc.org/sites/default/files/Creating%20an%20Energy%20Efficient%20Mortgage%20for%20Europe%20-%20Towards%20a%20New%20Market%20Standard%20-%20Web.pdf>

¹⁵ EEIP. (2021). *35 million time bomb: what's up with the EU Renovation Wave?* [Website]. Retrieved from <https://ee-ip.org/en/article/35-million-time-bomb-whats-up-with-the-eu-renovation-wave-5743>

¹⁶ *Deep renovations that improve the energy performance of a building by at least 60% are annually carried out only in 0.2% of the building stock and in only a fifth of the cases, energy efficiency is significantly improved.*

¹⁷ BPIE. (2021). *The road to climate-neutrality: Are national long-term renovation strategies fit for 2050?* [Website]. <https://www.bpie.eu/publication/the-road-to-climate-neutrality-are-national-long-term-renovation-strategies-fit-for-2050/>



Most of Europe's buildings are old, and inefficient. More than 220 million buildings, representing approximately 85% of the building stock¹⁸, were built before 2001 and most of these will still be standing in 2050¹⁹. Promoting energy efficient renovation is also considered a response to energy poverty, supporting health and wellbeing and potentially helping reduce energy bills for the nearly 34 million Europeans who can't properly afford to heat their homes or live comfortably cool in summer.

Strategies to deal with reducing emissions in “diffuse sectors”: Learning from Transport

In Europe, from 1990 to 2018, overall EU GHG emissions dropped by 21.6%²⁰. Like in the US, GHG reductions have been led by the energy sector, where in the EU GHG emissions dropped by a third. Yet EU CO₂ emissions from transport and buildings are higher than in 1990, with transport increasing by an alarming 21% over the same period²¹. Both buildings and transport emissions are diffuse, meaning they are delivered into the atmosphere by hundreds of millions of sources owned by billions of people. In the EU, transport is responsible for around 12 percent²² of the current EU's total greenhouse gas emissions, and a new approach was required.

To reduce transport emissions, EU Directive 2019/631 established fleet-wide CO₂ emission performance standards for passenger cars and registered vans for 2025 and 2030, mandating:

- Cars: 15% CO₂ emission reduction by 2025, and 37.5% reduction by 2030; and
- Vans: 15% CO₂ emission reduction by 2025, and 31% reduction by 2030.

These EU fleet portfolio emission standards are expected to reduce road transport CO₂ emissions by nearly 25% by 2030²³ (versus a 2005 base). Fleet efficiency will also reduce fuel costs for consumers. Fuel savings in 2030 for a new car are expected to be €1,100²⁴ over the lifetime of an average car and around €4,000²⁵ for an average new van. Further emission standards regulation is expected to increase EU competitiveness and create some 60,000 jobs by 2030²⁶. This figure can reach 80,000 jobs²⁷ should batteries be produced in the EU.

¹⁸ European Commission. (2020). *A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives. COM(2020) 662 final*. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020DC0662&id=5>

¹⁹ Ibid.

²⁰ Crippa, M.; Oreggioni, G.; Guizzardi, D.; Muntean, M.; Schaaf, E.; Lo Vullo, E.; Solazzo, E.; Manforti-Ferrario, F.; Olivier, J.G.J.; Vignati, E. *Fossil CO₂ and GHG Emissions of All World Countries - 2019 Report*; Publications Office of the European Union: Luxembourg, 2019; ISBN 978-92-76-11100-9.

²¹ Ibid.

²² European Commission. (2021). *CO₂ emission performance standards for cars and vans (2020 onwards)*. Retrieved from https://ec.europa.eu/clima/policies/transport/vehicles/regulation_en

²³ European Commission. (2018). *Proposal for a Regulation of the European Parliament and of the Council setting CO₂ emission performance standards for new heavy duty vehicles. SWD(2018) 185 final*. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52018SC0185&from=EN>

²⁴ European Commission. (2017). *Proposal for a Directive of the European Parliament and of the Council amending Directive 2006/1/EC on the use of vehicles hired without drivers for the carriage of goods by road*. Retrieved from <https://eur-lex.europa.eu/legal-content/ES/ALL/?uri=CELEX:52017SC0196>

²⁵ Ibid.

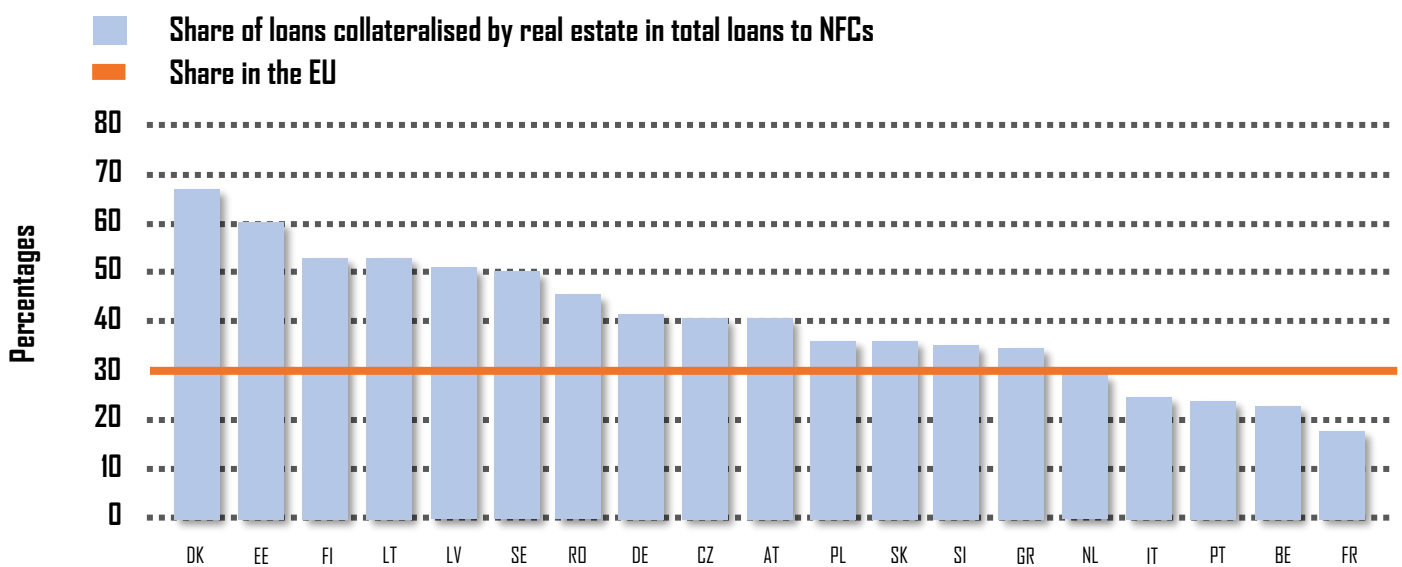
²⁶ Fragkos P, Paroussos L. Employment creation in EU related to renewables expansion. *Appl Energy* 2018;230:935–45. <https://doi.org/10.1016/J.APENERGY.2018.09.032>.

²⁷ Recharge. (2021). *Battery Technology*. [Website]. Retrieved from <https://rechargebatteries.org/battery-market-and-technologies/>



Buildings represent around half of global stored wealth²⁸, they are a valuable, real asset against which banks can lend. Mortgages and real estate backed loans fund around a third of the European building stock. Yet, the value of this property is impacted on the one hand by a changing climate, and on the other by the upcoming regulation that will transform Europe into a net-zero emissions economy by 2050. This property value can be protected through renovation investment. In fact, as the need to decarbonise buildings increases, there is an increasing risk of stranded real estate assets²⁹: Properties will become unrentable and unsaleable until they are renovated above a minimum, or, ideally, to a net zero energy or emissions basis.

Share of loans to non-financial companies collateralised by real estate in EU countries (2018)³⁰



Source: ECB – Statistical Data Warehouse (SDW)

On the 14th October 2020, the European Commission launched its Renovation Wave strategy to improve the energy performance of buildings. In this strategy, the Commission aims to more than double renovation rates over the next decade and ensure renovations lead to higher energy and resource efficiency. **The EC targets 35 million building renovations by 2030³¹ which it believes will require €275 billion³² invested per annum. This is nearly five times the 2019 total European buildings energy efficiency investment of €57 billion, reported by the IEA³³.** In this context, even the €100 billion³⁴ of EU recovery grants and loans called for as an emissions-based share (30% of the 30% green component) of recovery funds to renovate buildings by stakeholders is low. However, these public grants can play a critical role in technical and social assistance, yet falls very short of overall market needs.

To deliver this wave of buildings renovations, and to deliver new 2030 targets, the EC is updating the Energy Efficiency Directive, Renewable Energy Directive, EU Emissions Trading System and the Energy Performance of

²⁸ Savills. (2018). *8 things to know about global real estate value*. Retrieved from <https://www.savills.com/impacts/market-trends/8-things-you-need-to-know-about-the-value-of-global-real-estate.html>

²⁹ ShareAction. (2021). *Decarbonising Real Estate Foundations for Success*. Retrieved from <https://shareaction.org/wp-content/uploads/2021/02/Decarbonising-Real-Estate.pdf>

³⁰ Found in ESRB. (2019). *Methodologies for the assessment of real estate vulnerabilities and macroprudential policies: commercial real estate*. Retrieved from https://www.esrb.europa.eu/pub/pdf/reports/esrb.report191217_methodologies_assessment_real_estate_vulnerabilities_macroprudential_policies-15ff09ae41.en.pdf?ef824e0a19150e07ba6a292b67f78e2

³¹ European Commission. (2021). *Questions and Answers on the Renovation Wave*. Retrieved from [Website], https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_1836

³² Ibid.

³³ IEA Energy Efficiency 2020: <https://www.iea.org/reports/energy-efficiency-2020/energy-efficiency-in-2019>

³⁴ Riley, B. (2020). *Why buildings are the linchpin of the EU's climate and green recovery plans*. Retrieved from <https://www.reuterssevents.com/sustainability/why-buildings-are-linchpin-eus-climate-and-green-recovery-plans>



Buildings Directive. This will include revisions to the Energy Performance Certificate framework (see below) as well as a phased introduction of mandatory minimum energy performance standards for existing buildings. The EC also hopes to extend the scope of the existing renovation obligation in the EED to all public bodies and to increase the ambition level for such renovations. In addition, comprehensive guidance on sustainable public investment through green procurement is expected to be strengthened. With the agreement of new 2030 climate targets, notably a reduction of at least 55%³⁵ greenhouse gas emissions, a full review of EU regulation that is expected to lead to an increase in energy efficiency is underway.



³⁵ European Commission. (2021). *2030 Climate Target Plan*. [Website]. Retrieved from https://ec.europa.eu/clima/policies/eu-climate-action/2030_ctp_en



Dealing with Data: Making Energy Performance Certificates fit for Renovation

Energy Performance Certificates (EPCs) were introduced by the Energy Performance of Buildings Directive (EPBD) in 2002. Article 7³⁶ of the EPBD requires Member States to ensure that, when buildings are constructed, sold or rented out, an EPC needs to be made available to the owner, or by the owner to the prospective buyer or tenant.

EPCs simplify energy communication for retail customers, and they make invisible energy performance visible in clear letters and colours. Energy performance labelling has revolutionised consumer behaviour in the purchase of white goods³⁷ and has impacted their manufacturers and respective supply-chains' approach to energy efficiency. Yet two decades after their conception for whole buildings, progress with EPCs has been disappointing, just as smart meters start to offer the opportunity of real-time energy data. A digital building logbook containing relevant energy usage data could be very useful to financial owners and operators of buildings and might allow more accurate, real time and effective management of buildings energy and emissions and make renovations easier to prepare, programme and cost.

One of the core issues for EPC design is that it can't be all things to all users. Different data is required by different building stakeholders:

- **Building Owner and Occupants:** Simplified and contextual information that illustrates the actual real building performance (translated into real costs) and any potential improvement of these (in terms of reduced costs) and the rough investment cost of that renovation.
- **Finance provider:** Actual property market value, real aggregate annual energy usage data and current EPC level. Additionally, increasingly finance providers are interested in the estimated cost of a Paris-compliant renovation and any resulting creditworthiness improvement of the borrower.
- **Renovation Provider:** Physical buildings attributes and actual energy use.

An EPC presently provides a snap-shot of a physical reality at a particular point in time: often rental or sale. It is a static record and largely based upon a combination of observed, estimated and asset-rated data. It is fit for indicative purposes and acts as a fair proxy for owners, banks and renovators to begin a process of further investigation. It is hard (and costly) to imagine a world where a "perfect" EPC will be constantly updated independently with all adequate information for any possible transaction: sale, rental, financing or renovation. In all cases where the data which is contained in a static EPC may drive an investment decision, more accurate and transaction specific data will be required to provide a quote and/or valuation assessment.

Even as just a static guide to overall efficiency, EPCs need to be better implemented and more easily accessible. While 27 Member States have some form of EPC database³⁸, just 15 Member States³⁹ provide public access to EPCs via a central, national database, and even then there are issues of address mismatch, age, lack of harmonisation and quality that can be improved.

³⁶ European Commission. (2021). *Minimum energy performance requirements for all buildings that undergo major renovation*. [Website]. Retrieved from https://ec.europa.eu/energy/content/minimum-energy-performance-requirements-all-buildings-undergo-major-renovation_en

³⁷ ECODEFYS. (2014). *Final technical report: Evaluation of the Energy Labelling Directive and specific aspects of the Ecodesign Directive ENER/C3/2012-523*. Retrieved from http://www.buildup.eu/sites/default/files/content/Final_technical_report-Evaluation_ELD_ED_June_2014.pdf

³⁸ European Commission. (2021). *Public EPC registers*. [Dataset]. Retrieved from https://ec.europa.eu/energy/content/public-epc-registers_en

³⁹ QualDeEPC. (2020). *D2.2 Report on EPC best practices*. Retrieved from https://qualdeepc.eu/wp-content/uploads/2020/06/QualDeEPC_D2.2-Report-on-EPC-best-practices_Final_28052020.pdf



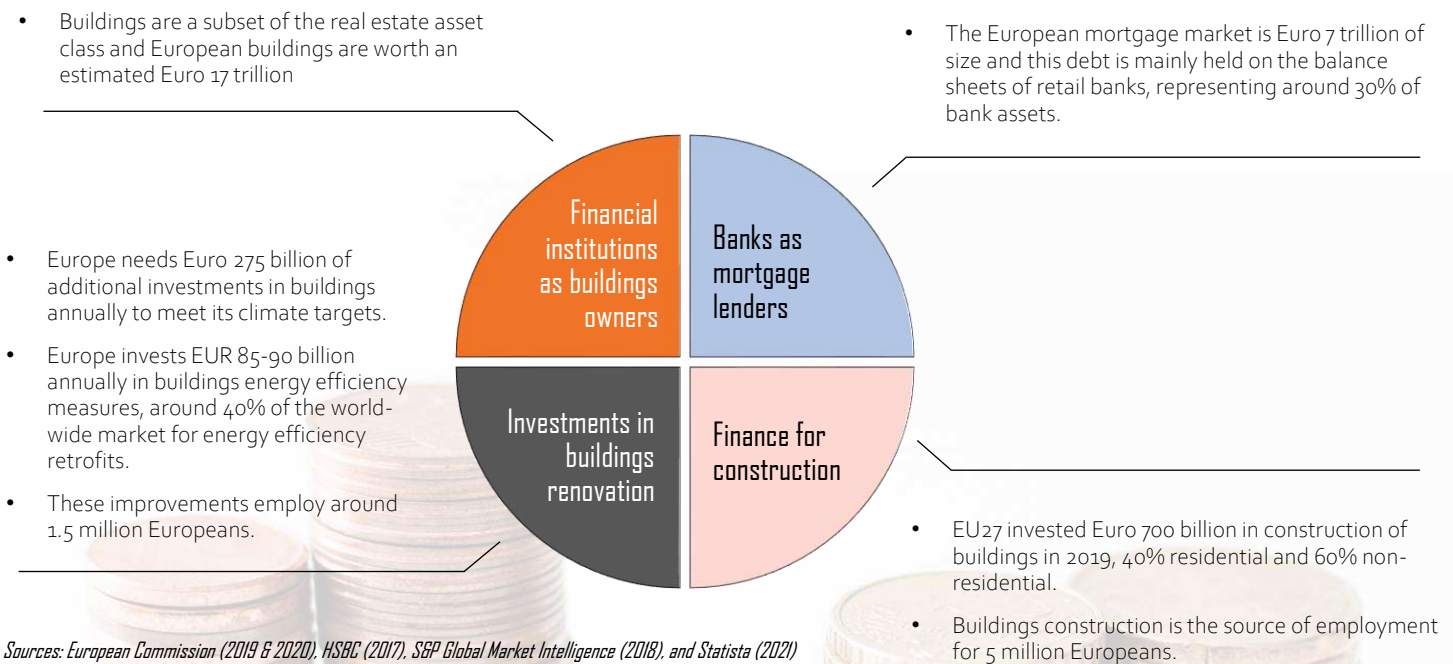
Current best practices in this regard can be found in the Netherlands, in the form of visualisation tools, and other countries (like Italy) that provide certified renovation professionals confidential access to energy data on buildings.

EPCs are an EU standard label⁴⁰ and offer a good proxy for banks to assess the energy efficiency of their mortgages in the absence of higher quality, real-data. With nearly two decades invested behind EPCs, EU society needs them to be useful, practical and valued by buildings owners. However, EPCs will not replace the need for real-time data for sophisticated building owners and in the context of a real financial transaction. Financial institutions have concluded that the EPC isn't perfect, but it's better than nothing and provides a good start to drive understanding and renovation, as a proxy.

To promote an increased rate of renovation, the EU is looking to use its revision of the EPBD⁴¹ to introduce mandatory minimum energy performance standards ("MEPS") for all existing buildings. England, Wales, Scotland, Netherlands (from 2023), French homes (from 2028) and Flanders have already implemented MEPS and these new standards create very real transition risks for all EU real estate.

In alignment with these new targets and regulations, Member States are encouraged to dedicate grants and loans under the 'Renovate' flagship component of the Recovery and Resilience Facility from the NextGenerationEU fund. To facilitate this, the rules for combining different public funding streams, and for offering incentives for private financing are being simplified. This provides an opportunity for increased project development and technical assistance facilities to support the preparation and implementation of buildings renovation projects, and to address energy poverty, as a way of kick-starting this underperforming element of Europe's emissions-free and more equitable future.

Finance and financial institutions have a central, but nuanced set of roles in the context of buildings decarbonisation in Europe as illustrated here:



Sources: European Commission (2019 & 2020), HSBC (2017), S&P Global Market Intelligence (2018), and Statista (2021)

⁴⁰ European Commission. (2021). *EPC distribution per energy label*. [Website]. Retrieved from https://ec.europa.eu/energy/content/epc-distribution-energy-label_en

⁴¹ European Commission. (2021). *Public consultation launched on revising the Energy Performance of Buildings Directive*. [Website]. https://ec.europa.eu/info/news/public-consultation-launched-revising-energy-performance-buildings-directive-2021-mar-30_en



The EU policy framework has to dramatically align the interests of private sector financial players with the objectives of the Renovation Wave, or there will be a continued miss-alignment of interests between finance and renovation objectives. This paper purports that a Mortgage Portfolio Standard (“MPS”) can help resolve this miss-alignment of interests and increase the rate and depth of home renovations as described in the next chapter.

Triodos' proactive approach to the promotion of home energy performance by attributing emissions mortgages

Dutch bank Triodos has a policy of offering products with a purpose to further the bank's positive impact on its clients and society alike. Residential sustainable mortgages represented 21% (17% in 2017) of the bank's retail loan book⁴². These are designed to incentivise clients to implement energy efficiency measures through the offering of a discount on their mortgage rate subject to the environmental performance of their home.

In line with the PCAF standard, Triodos applies the attribution approach, where emissions are calculated as they relate to the proportion of finance in a project or on a customer's balance sheet. In 2020, Triodos applied the principle above to its residential mortgage portfolio using the loan-to-value ratio. The direct result was lower attributed emissions and a lower emission intensity for this portfolio.

The results were that in 2020, Triodos Bank and Triodos Investment Management financed⁴³ both via retail Banking and via sustainable property close to 17,600 homes and apartments (2019: 13,700), an increase of almost a third (28%). In addition, the bank financed around 480 commercial properties of 830,000 m² for office and other commercial space, and 981,000 m² of buildings and brown-field sites.

2021 – Leading up to COP26⁴⁴

From 2021, Triodos intends to build a leading net-zero portfolio. While the bank's existing portfolio has a relatively low climate intensity from its loans and funds' investments, Triodos is developing further effective strategies that enable an inclusive and sustainable transition. These include the development and establishment of science-based targets, and to extend the energy efficiency finance of homes among its customers. Triodos will present detailed long and short term targets by COP26 (November 2021).

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⁴² Triodos. (2021). *Annual Report 2020*. Retrieved from <https://www.triodos.com/press-releases/2021/annual-results-2020>

⁴³ Triodos. (2021). *Sustainable property*. [Website]. Retrieved from <https://www.triodos.com/impact-themes/sustainable-property>

⁴⁴ Triodos. (2021). *Annual Report 2020*. Retrieved from <https://www.triodos.com/press-releases/2021/annual-results-2020>





Mortgage Portfolio Standards ("MPS")

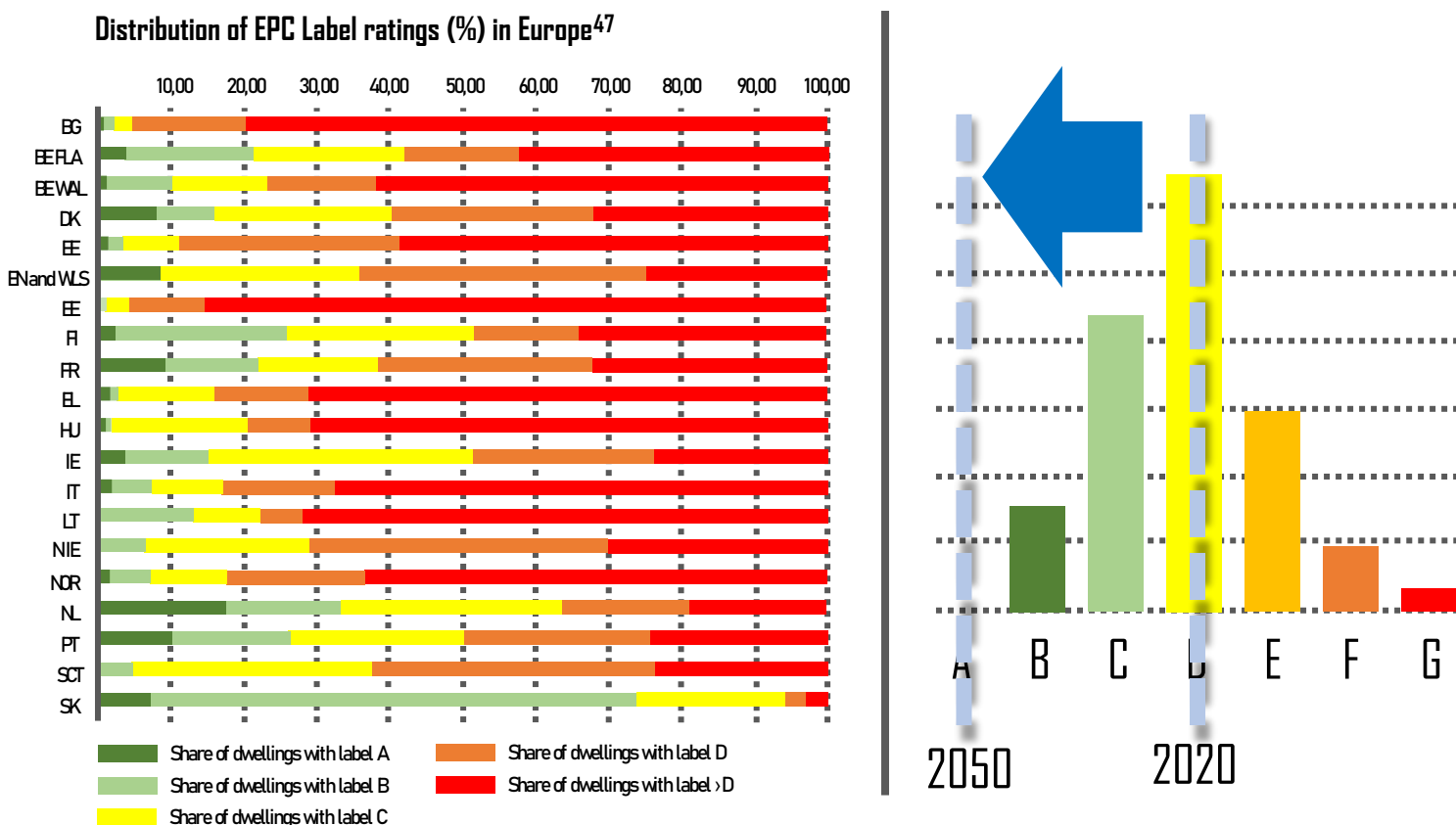


Mortgage lenders are the single most powerful and impacted institutional stakeholder group in the decarbonisation of Europe's buildings. Portfolio standards for vehicle fleet emissions and renewable energy production are among the most successful approaches to guiding the transition of highly disaggregated sectors, like buildings. Combining these in Mortgage Portfolio Standards provides a clear alignment of interests and resources to deliver the EU Renovation Wave. This chapter defines a mortgage portfolio standard for retail lenders, its design features and describes how it would rationalise and support the EU buildings renovation challenge.

What is a Mortgage Portfolio Standard ?

Over a quarter of all Europeans live in a mortgaged house, and a further 42% own their home outright⁴⁵. Mortgage lenders are the largest financial stakeholders in European buildings, in aggregate lending €7 trillion⁴⁶ against residential property and European owners' future incomes. Given these and other financial institutions' exposure to buildings in Europe, and their existing relationships with over 50 million homeowners they are probably the single major common stakeholder in their decarbonisation.

Nearly all of the 50+ million mortgaged European homes will need renovation between now and 2050, and most a transformative one. The chart below shows the current distribution of the energy performance certificates of buildings in Europe, which likely matches that of any national mortgage lender's portfolio.



Sources: X-tendo (2020) & EU Building Stock Observatory (2020) Sources: University of Southampton (2021) & Openrent (2020)

A European mortgage bank, with a loan portfolio lent against properties distributed across the above national example EPC distribution curve, has an average or median energy performance certificate today of "D". For this bank a Mortgage Portfolio Standard ("MPS") would target a portfolio average of "C", "B" and finally "A" by given target years to align with the Paris Agreement and for net-zero emissions compliance.

⁴⁵ Statista. (2021). *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/>

⁴⁶ EaMAP. (2018). *Creating an Energy Efficient Mortgage for Europe Towards a New Market Standard*. Retrieved from <https://www.worldgbc.org/sites/default/files/Creating%20an%20Energy%20Efficient%20Mortgage%20for%20Europe%20-%20Towards%20a%20New%20Market%20Standard%20-%20Web.pdf>

⁴⁷ X-tendo. (2021). *Energy Performance Certificates Assessing their Status and Potential*. https://x-tendo.eu/wp-content/uploads/2020/05/X-TENDD-REPORT_FINAL_pages.pdf



ABN AMRO has a Mortgage Portfolio Standard of “A” by 2030, and “C” by 2025⁴⁸

Dutch bank ABN AMRO finances over 10% of the total number of buildings in the in the Netherlands. With a balance sheet of EUR 185 billion⁴⁹ in outstanding loans for residential and commercial property, this represents two-thirds of its loan portfolio. In 2017 ABN AMRO launched an initiative to work closely with both commercial and retail, and residential clients in order to improve the energy efficiency of its complete real estate portfolio to an average A label by 2030.

The bank as partnered with the Partnership for Carbon Accounting Financials (PCAF) to assess the carbon intensity and the necessary measures for each building. The interim goal for 2025 is for the bank’s real estate portfolio to have a C label. A key component of ABN AMRO's strategy for commercial and retail clients is its innovative Sustainable Investment Tool. Developed in cooperation with CFP Green Buildings, this tool offers owners and investors insights into the energy label of properties, outlining improvement measures. Furthermore, the tool provides a calculation of the investment, payback period, and the potential reduction of CO₂. At present, ABN AMRO is comparing the trajectory of its commercial real estate portfolio against the IEA’s Beyond 2 Degrees Scenario (B2DS) decarbonisation pathway, which advocates the implementation of energy efficiency and the uptake of clean energy to achieve the goals of the Paris Agreement. The bank has undergone the process of having these B2DS alignment outcomes validated by the SBTi.

In the case of residential real estate, homes with an A label are increasingly relevant in the banks’ portfolio, accounting for 17% of the total homes. Since 2018, ABN AMRO has committed to the SBTi, to define the path of its mortgage portfolio. Targets are established relying on the Sectoral Decarbonisation Approach (SDA), using 2016 as a year baseline. Mirroring its commercial portfolio, ABN AMRO is also using B2DS to compare the trajectory of its mortgage portfolio towards 2030. In terms of online tools, the bank’s Energy Saving Check free online tool provides customers a personalised sustainability roadmap offering a clear picture on the costs and potential savings of precise measures and subsidies available. The Sustainable Living Mortgage offers clients attractive mortgage terms and lower interest rates. Those homes with an A label will benefit from a reduced mortgage rate at the interest reset date.

ABN AMRO own Buildings⁵⁰

By 2030 ABN AMRO intends for its entire buildings and branch network to be “Paris Proof”, reducing the annual average energy consumption per square meter of the buildings it occupies to 50 kWh. Within the next 10 years, the overall renovation of its entire branch network will entail significant reductions: from 34 million to 22 million kWh of energy consumption annually, from 15,400 tons to 9,000 tons of CO₂ emissions per year, and from 1.1 million cubic meters of gas consumption to discarding the use of gas completely.

⁴⁸ ABN AMRO. (2021). *Guiding a Bank's portfolio to Paris: Our journey of Paris alignment 2021*. Retrieved from https://assets.ctfassets.net/lu811bvgvthc/6sGh4HraHXoLD3FBqubLXe/4090796cb21c8fa388e9680c761e8d9b/ABN_AMRO_Guiding_a_Bank-s_Portfolio_to_Paris_002.pdf

⁴⁹ ABN AMRO. (2017). *ABN AMRO helps clients improve the sustainability of their homes*. Retrieved from <https://www.abnamro.com/en/newsroom/press-releases/2017/abn-amro-helps-clients-improve-the-sustainability-of-their-homes.html>

⁵⁰ Dutch Green Building Council. (2020). *Kantoren ABN AMRO binnen tien jaar Paris Proof*. Retrieved from <https://www.dgbc.nl/nieuws/kantoren-abn-amro-binnen-tien-jaar-paris-proof-1858>

Proposed design elements of a European Mortgage Portfolio Standard

Portfolio standards are proven regulatory tools deployed in reducing energy and transport emissions, however exact MPS design is important to align all stakeholder interests. In Europe, fleet emissions standards are expected to reduce car and van emissions by 15% by 2025 (and over 30% by 2030), and in the US renewable portfolio standards have been responsible for around half of the growth in renewable energy production (as shown below).



UK Evaluates improving home energy performance through lenders⁵¹

Of the 15 million owner-occupied households in England, 45% are owned with a mortgage, equating to almost 7 million homes. In addition, 61% of the 4.5 million private rented households in England are owned with a mortgage, with a broadly similar picture in Wales. In 2019, 70% of all UK mortgage lending was originated by just six high street lenders in this highly concentrated market.

Further, working papers published by the Bank of England suggest that the energy performance of a property is a relevant predictor of mortgage payment arrears and may become a relevant factor for risk-adjusted pricing of mortgages. These statistical approaches have more recently been validated by Nationwide, and other European banks, working with the EU-UNEFPF's Energy Efficiency Financial Institutions Group (EEFIG).

The UK Government recognises that lenders are uniquely placed to influence their client's perspective on energy performance at critical trigger points such as home purchase, renovation, or re-mortgage. These critical interactions with customers provide an opportunity for lenders to develop products that promote investment in improving the energy performance of homes. The consultation report also sees lenders' developing this market as a way of reducing the risk of homes becoming stranded assets as energy performance standards are tightened.

The UK regulatory proposal is two-fold. Firstly, there would be mandatory disclosure of energy performance for all registered mortgage lenders on their websites and to Government on an annual basis, including:

⁵¹ Improving home energy performance through lenders: UK BEIS Consultation on setting requirements for lenders to help householders improve the energy performance of their homes: [website] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/936276/improving-home-energy-performance-through-lenders-consultation.pdf



- current percentage of properties in each EPC Band A to G;
- percentage of the portfolio with an existing EPC;
- gross value of mortgage lending by EPC band each year; and
- gross value of 'green' mortgage lending for energy performance improvement works by EPC band.

Secondly, UK lenders should voluntarily agree to meet a portfolio average of EPC Band C by 2030. To meet this target, the homes within a lender's portfolio would be required to have a mean average SAP point score of at least 69. SAP is the UK's Standard Assessment Procedure for Energy Rating of Dwellings, and the score is expressed on a scale of 1-100 with the higher the number the lower the running costs.

Given the need for lenders to promote home improvements which meet expected technical quality standards, the UK also promotes a TrustMark scheme to create a level playing field for reputable energy performance improvements installers. TrustMark businesses are vetted to meet required standards and are required to provide robust consumer and financial protection. The UK government also retains the option to introduce primary legislation that will allow for mandatory improvement targets on lenders if insufficient action risks a shortfall in emissions savings required by its binding carbon budgets.

Banks are to financing buildings what utilities are to funding renewables, and what vehicle manufacturers are to buying new cars. Although financial institutions⁵² do not build buildings, they provide construction finance, offer mortgages to new and existing owners and as such are a uniform point of entry into an otherwise highly diffuse sector.

With €275 billion renovation finance needed annually in Europe, the distribution fees alone available to banks participating with their clients in this market could be €2-4 billion annually. Moreover, there with pressure from EU Taxonomy disclosure regulations, balance sheet alignment with the Paris Agreement and leading banks⁵³ already committing to reach an average EPC-label for their mortgage portfolio by 2030, the race to capture and work with renovation-ready homeowners has begun.

Core design elements of an EU Mortgage Portfolio Standards ("MPS") which would build on these drivers and create a level playing field to align the needs of homeowners with mortgage providers and Member States as co-signatories to the Paris Agreement include:

- MPS covers all mortgage lenders and mortgage debt holders (as regulated parties), including final holders of mortgages housed in special purpose vehicles, securitisation companies and other intermediate bodies;
- MPS would have a 2050 final destination to allow for long-term renovations and upgrade planning and financing by owners and finance providers alike;
- MPS targets would be aligned with a Paris Agreement trajectory⁵⁴, stable, ramp-up steadily over time and not be subject to sudden or uncertain shifts;
- MPS can rely on verified real energy or emissions data from the property or an Energy Performance Certificate as a proxy; and
- MPS rules would include non-compliance penalties on those entities that fail to meet their stated goals.

⁵² Financial Times. (2021). *Europe breaks records with government bond issuance surge*. [Website]. Retrieved from <https://www.ft.com/content/199b6227-978e-4e01-ba67-8f4d2a072c1>

⁵³ ABN AMRO. (2021). *Guiding a Bank's portfolio to Paris: Our journey of Paris alignment 2021*. Retrieved from https://assets.ctfassets.net/1u811bvgvthc/6sGh4HraHXoLD3fBqublXe/4090796cb21c8fa388e9680c761e8d9b/ABN_AMRO_Guiding_a_Bank-s_Portfolio_to_Paris_002.pdf

⁵⁴ These can be identified for different portfolios using tools similar to CRRCM: www.crrcm.eu



ING's inclusive Terra approach relies on voluntary MPS to foster decarbonisation⁵⁵

Launched in 2019, the Terra approach is the cornerstone of ING's decarbonisation efforts. It enables the bank to focus on the most polluting sectors found in its loan book. Relying on the PACTA and the Science Based Targets initiative's Sectoral Decarbonisation Approach (SBTi SDA), Terra measures the impact of those sectors on the environment and puts forward portfolio decarbonisation objectives while addressing steps to reach a Paris-aligned pathway.

Thanks to Terra, ING managed to achieve its ambitious 2019 goal for its Dutch commercial property portfolio: 65% of the entire portfolio has a green energy label ('C' or better). The bank's performance goals for the commercial real estate sector include:

- Office buildings, by year-end 2020: 90% ought to have an energy label of A, B or C⁵⁶, (current ING performance: 81%).
- All other asset types, by year-end 2020: 67% have a (provisional) energy label of A, B or Commercial buildings, by 2023: 100% green energy label.

Residential mortgages amount to €298 bn⁵⁷ (around 50% of ING's loan book), and the bank's long-term vision is for its mortgage portfolio to be energy-positive⁵⁸ by 2050. However, ING is aware that Dutch homeowners are not taking-up energy efficiency measures at the desired rates. For instance, in 2019 the bank offered its Dutch mortgage clients a free energy label scan. Although the offer included a chance to win €10,000 in energy upgrades and was sent to close to 100,000 clients, only little over 2,000 new energy labels were distributed.

Better data results in the decarbonisation of buildings

Data quality is an issue for ING to decarbonise its residential real estate portfolio. Energy labels are used as a proxy to assess both the energy consumption and CO₂ intensity per m², which makes it difficult to measure a true energy shift in the portfolio. In the Netherlands, 60% of buildings do not have a definite energy label, and for ING's other markets energy labels are mainly not publicly available. ING advocates for stronger EPCs that address the real CO₂ intensity of homes per m², as this would result in a more transparent and effective assessment and allocation of the technologies and finance needs of each home. Moreover, the bank calls for increased government policies that would ease the climate transition and help alleviate homeowners' doubts. ING experts understand that the decarbonisation of residential real estate is subject to government actions, and they seek to align the bank's strategy with them.

⁵⁵ ING. (2021). *Terra Progress Report 2020*. Retrieved from <https://www.ing.com/Newsroom/News/2020-ING-Terra-progress-report-1.htm>

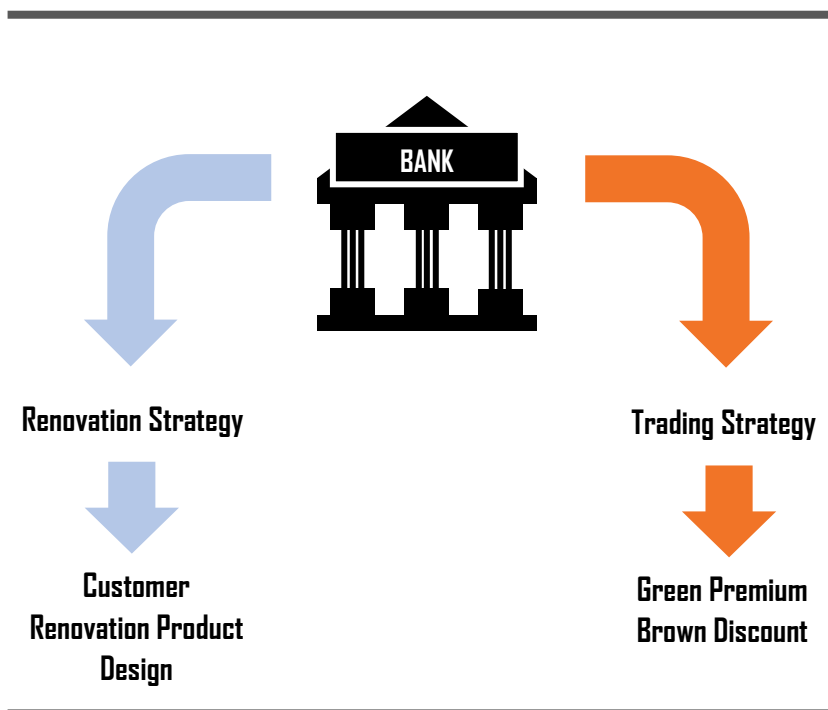
⁵⁶ In line with Dutch legislation in effect as from 2023 for office buildings

⁵⁷ ING. (2020). *First quarter 2020 results: ING posts 1Q2020 net result of €670 mln*. Retrieved from <https://www.ing.com/Investor-relations/Financial-performance/Quarterly-results/ING-Analyst-presentation-1Q2020.htm>

⁵⁸ This entails for homes in the portfolio to collectively generate more energy than they consume.

MPS Compliance: Working with Property Owners to Boost Renovation Rates

Lenders wishing to “green” their mortgages have two potential compliance strategies: Either renovate each building backing a mortgage in alignment with EU Taxonomy, a “renovation compliance route”; or they could sell their mortgages lent against low EPC rated properties and acquire those lent against highly energy efficient buildings, a “trading-based compliance route”.



A trading-based MPS compliance approach would likely create a market pricing response that priced-in a premium for high EPC linked mortgages, and potentially a discount for low EPC linked mortgages. Over the long-term this would provide further economic incentives for banks to upgrade their existing mortgage portfolios and set more aggressive MPS. However, it may also be argued that it might prejudice the energy poor, who may not have immediate access to the additional borrowing capacity to upgrade their homes. Clearly, public funding solutions and guarantees are necessary and available solutions to prevent and resolve this, and this should be a central pillar of the build back better renovation-led recovery from covid-19 back by a historic infusion of EU-funds.

There are two alternate solutions for the design of MPS to align it with existing standards:

1. **Acquired mortgages must meet a higher standard:** The EU Taxonomy requires a commitment to upgrade “acquired properties” to at least an Energy Performance Certificate (EPC) class A, unless the building can evidence it is within the top 15% of the national or regional building stock by operational Primary Energy Demand (PED). And if built in 2021 or later, it needs to comply with the EU Taxonomy criteria for new buildings⁵⁹.
2. **A mandatory renovation requirement for the portfolio:** Climate bond standards have a mandatory minimum upgrade performance of 30%-50% (depending on bond maturity) of portfolio emissions for the properties backing a certified climate bond.

Mortgage portfolio standards require the lender to implement a portfolio upgrade strategy and if a mortgage-backed bond wishes to be certified by the Climate Bond Initiative then that

⁵⁹ EU Technical Expert Group on Sustainable Finance. (2010). *Updated methodology & Updated Technical Screening Criteria*. Retrieved from https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en.pdf



upgrade will need to align with their mandatory requirement. Acquisitions are likely to be sought in the EPC “A” category, which is presently very narrow and – given the competition for green assets - are unlikely to be sold – and therefore the obligation to upgrade acquired mortgages to EPC “A” class would likely prevent a trading-based approach to delivering a mortgage portfolio standard commitment.



In any case, for MPS to align financial institutions’ property-linked loans and assets with EU climate and energy targets and the Paris Agreement, a “carrot and stick” should be evident. The carrot are the billions of euros of fees that can be made through working with clients to borrow-to-renovate, as well as the evidence which shows that green property is worth more, and that owners of energy efficient homes are less likely to exhibit arrears or defaults in their mortgages. The stick is that unless renovated, aside from higher operational costs, buildings are at increasing risk of becoming stranded by new regulations, such as minimum energy performance standards (“MEPS”), taxes and ever-growing climate risks⁶⁰.

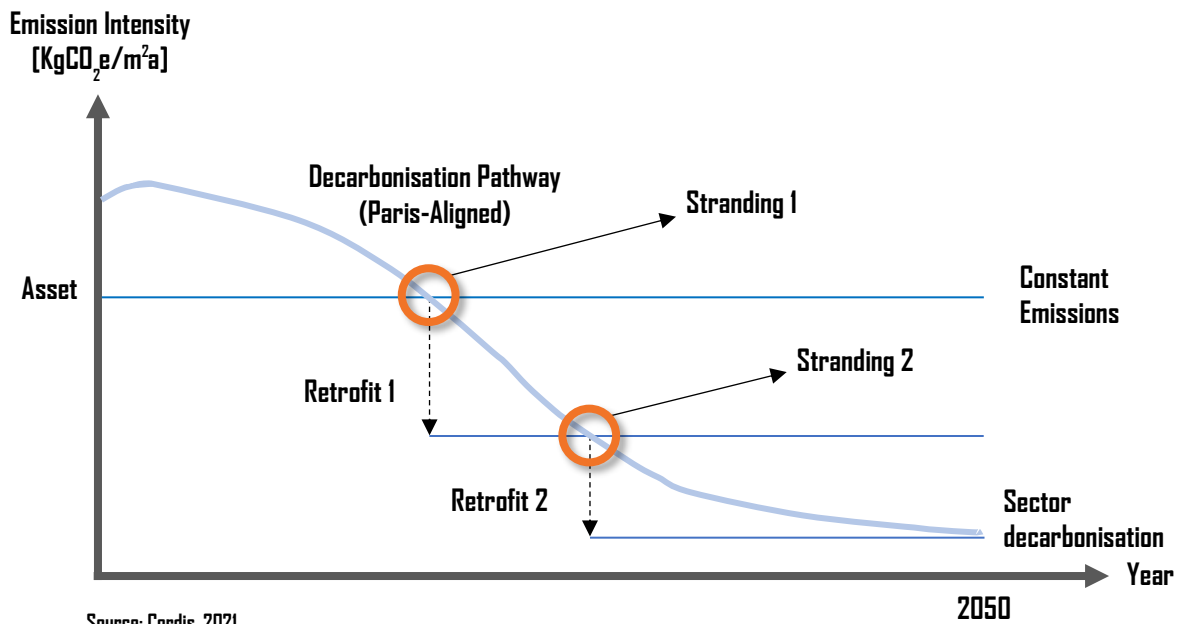
Defining a Paris-aligned MPS trajectory for a building and a mortgage portfolio

While each building has a unique transition trajectory, depending upon its physical attributes and local environment, financial institutions with millions of property-backed loans and mortgages must consider their climate transition at a portfolio level. The concept of MPS builds on the EU Taxonomy’s own approach to labelling sustainable finance in the real estate sector and is supported by EU-funded asset-level tools like the Carbon Risk Real Estate Monitor tool. The following diagram illustrates what a building decarbonisation pathway looks like and how a bank and homeowner can identify an optimal renovation point⁶¹.

⁶⁰ UNEP. (2021). *Buildings and Climate Change Adaptation: A Call to Action*. [Website]. Retrieved from <https://globalabc.org/resources/publications/buildings-and-climate-change-adaptation-call-action>

⁶¹ CREEM. (2020). *CRREM Risk Assessment: Reference Guide-User manual for the CRREM Risk Assessment Tool*. [Website]. Retrieved from <https://www.crrem.eu/wp-content/uploads/2020/09/CRREM-Risk-Assessment-Reference-Guide-2020-09-21.pdf>





To comply with MPS, banks will need easy to use tools to set and track portfolio targets. For commercial real estate, and larger buildings, the Carbon Risk Real Estate Monitor (“CRREM”) already provides an easy-to-use pathway tool for science-aligned decarbonising, and reducing stranding risks, at the building level that is being used by managers owning over €300 billion worth of property covering 5 million square metres.

Funded by the EU’s Horizon 2020 Programme, CREEM provides science-based carbon reduction pathways⁶² for individual buildings, which could allow homeowners to understand why and when to renovate to increase their efficiency to comply with likely EU Regulation. CRREM considers the different energy intensities of buildings in different locations (countries) for pathways, in a manner which also reflects the Climate Bond Standard’s city-level emissions intensity baselines⁶³. CREEM and similar tools can be used by banks for creating MPS target thresholds for residential portfolios in specific regions or countries in the knowledge that green bonds backed by these mortgages also comply with capital market standards. This would offer be a simple start for banks needing a basis for MPS in certain countries and will reassure no double administration for aligned sustainable finance reporting and requirements.



Tools like CRREM can be built into the conversations between mortgage providers and homeowners so that future financial and regulatory planning is considered, as 85% of European buildings have a particular future moment when the transition to a net-zero economy will strand it. A combination of minimum energy performance standards, carbon prices and taxes will provide growing pressure to conduct net-zero aligned renovation works, which will be the economically rational decision at or before the “stranding point”. A deep renovation already makes economic sense for millions of building owners – and with low-cost, long-term mortgage financing being offered, this provides strong economic alignment between bank and client.

⁶² These are aligned with the Paris Climate Goals of limiting global temperature rise to 2°C, with ambition towards 1.5°C. GRESB. (2021). *Carbon Risk Real Estate Monitor (CRREM)*. Retrieved from <https://gresb.com/carbon-risk-real-estate-monitor/>

⁶³ CBI. (2020). *Buildings Criteria: The Buildings Criteria for the Climate Bonds Standard & Certification Scheme*. Retrieved from https://www.climatebonds.net/files/files/standards/Buildings/Low%20Carbon%20Building%20Criteria_V_1_1_July2020.pdf



MPS Builds on Approaches Developed by the Science-based Targets Initiative for finance

MPS targets lever existing best practices for mortgage and property lenders as promoted by the Science Based Targets initiative and the Partnership for Carbon Accounting Financials. On 1st October 2020, the (SBTi) launched its science-based target validation approach for financial institutions⁶⁴ to align their lending and investments with the Paris Agreement. Fifty-five financial institutions have committed to implementing a SBT and are in a piloting phase working with draft guidance⁶⁵.

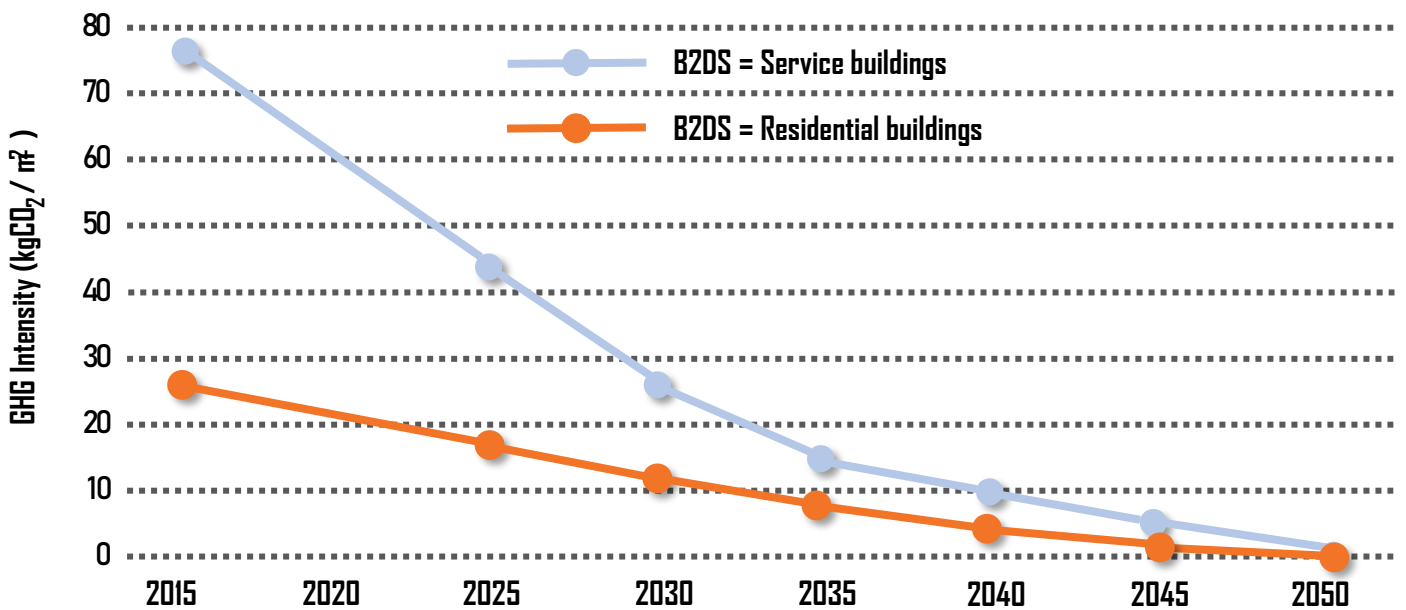


SCIENCE
BASED
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

SBTi has developed Sectoral Decarbonisation Approaches⁶⁶ (SDAs) for Residential Mortgages and Commercial Real Estate. SDAs require banks with science-based targets to estimate baseline building and portfolio energy-related emissions data from building-level energy use, sourced from energy bills, or estimated based on energy performance certificates or other labels. SBTi launched an excel based tool⁶⁷ that lever IEA's Energy Technology perspectives (ETP) 2017 Beyond 2°C Scenario (B2DS) projections to offer global decarbonisation pathways for buildings (shown in the chart below) that are similar to those created by CREM.

IEA's ETP 2017 Beyond 2°C Scenario (B2DS) projections for Residential and Service Buildings⁶⁸



Note: B2DS = Beyond 2°C Scenario

⁶⁴ Science Based Targets. (2020). *First opportunity for banks to receive stamp of approval on science-based climate targets*. [Website]. Retrieved from <https://sciencebasedtargets.org/news/first-opportunity-for-banks-to-receive-stamp-of-approval-on-science-based-climate-targets>

⁶⁵ Science Based Targets. (2020). *FINANCIAL SECTOR SCIENCE-BASED TARGETS GUIDANCE PILOT VERSION*. The European banks working with SBT in the multi-annual production of this guidance (since 2018) include: ABN Amro, Bankinter, BNP Paribas, ING, Banque Postal and Swedbank. Retrieved from: <https://sciencebasedtargets.org/wp-content/uploads/2020/10/Financial-Sector-Science-Based-Targets-Guidance-Pilot-Version.pdf>

⁶⁶ Science Based Targets. (2021). *SDA Tool for Commercial Real Estate and Residential Mortgages*. [Excel document]. Retrieved from https://sciencebasedtargets.org/resources/files/SBT-for-Residential-Mortgage-and-Commercial-Real-Estate-Calculation-Sheet_Final-Edit.xlsx

⁶⁷ Science Based Targets. (2020). *Draft Excel tool for SDA Real Estate Assets*. Retrieved from available here: https://sciencebasedtargets.org/wp-content/uploads/2020/09/SBT-for-Residential-Mortgage-and-Commercial-Real-Estate-Calculation-Sheet_Final-Edit.xlsx

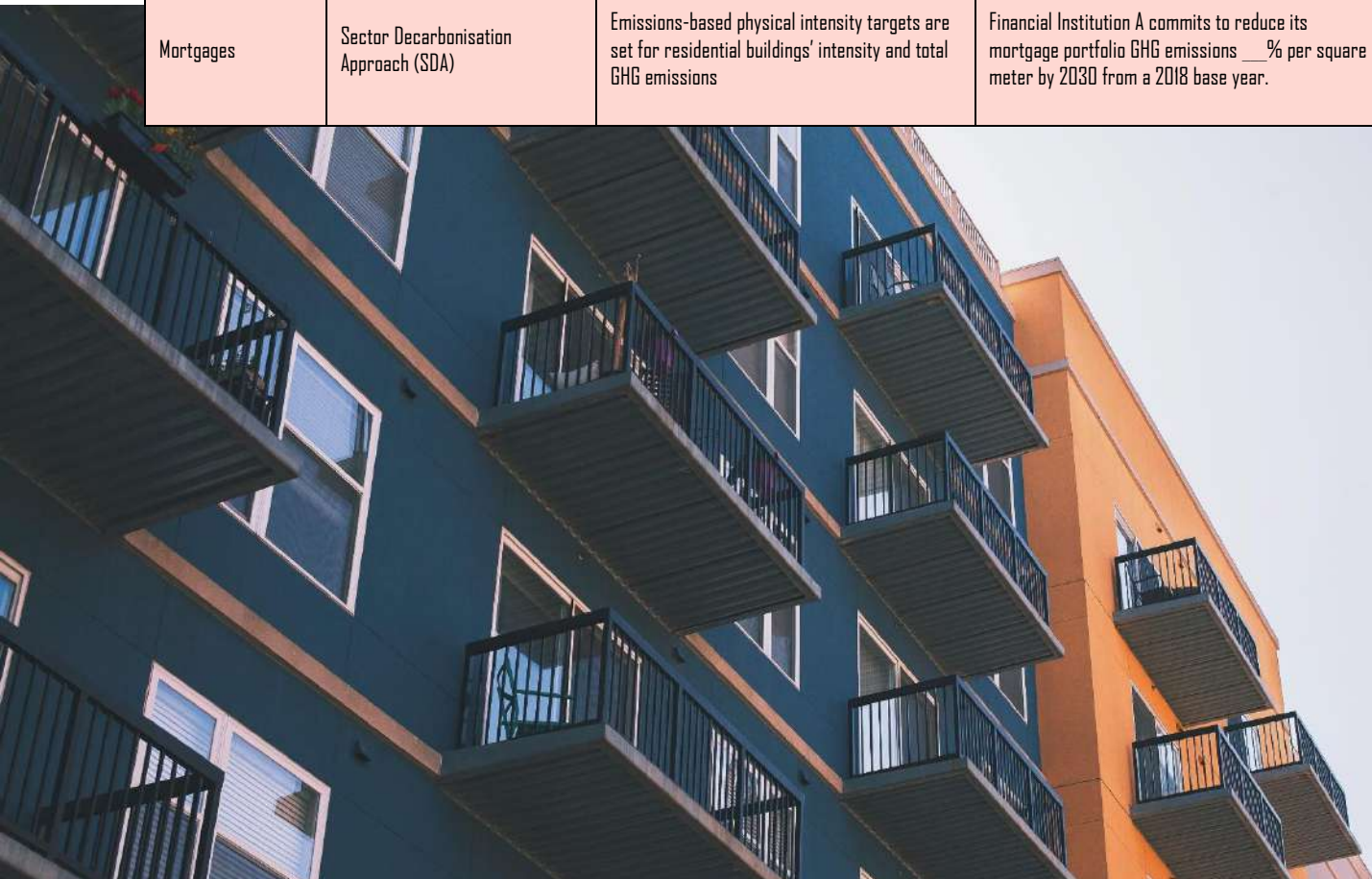
⁶⁸ IEA. (2020). *ETP Model 2017*. [Website]. Retrieved from <https://www.iea.org/reports/etp-model-2017/buildings-sector#abstract>



SBT’s approach for residential mortgages uses the gross floor area of the buildings in mortgage portfolios to derive an emissions intensity metric (e.g., tCO₂e/m²). The output is an emission intensity target (per m² gross floor area) for the mortgage portfolio. Financial institutions can then decide to translate this emissions intensity target per m² floor area into an absolute target by taking the growth projection in m² floor area of their mortgage portfolio into account for the target year(s).

Like MPS, a sample SDA target would be: Financial Institution A commits to reduce its mortgage portfolio GHG emissions by ___% per m² by 2030 from a 2017 base year. This SBTi approach is aligned with the carbon accounting method for mortgages developed by the Partnership for Carbon Accounting Financials⁶⁹ (“PCAF”)’s Global Carbon Accounting Standard for the Financial Industry⁷⁰ as summarised below:

Asset Class	Method	Description	Potential Target Output Example
Real estate	Sector Decarbonisation Approach (SDA)	Emissions-based physical intensity targets are set for non-residential buildings’ intensity and total GHG emissions.	Financial Institution A commits to reduce its real estate portfolio GHG emissions ___% per square meter by 2030 from a 2018 base year.
Mortgages	Sector Decarbonisation Approach (SDA)	Emissions-based physical intensity targets are set for residential buildings’ intensity and total GHG emissions	Financial Institution A commits to reduce its mortgage portfolio GHG emissions ___% per square meter by 2030 from a 2018 base year.



⁶⁹ SBTi. (2021). *FINANCIAL SECTOR SCIENCE-BASED TARGETS GUIDANCEPILOT VERSION1.1*. Retrieved from <https://sciencebasedtargets.org/resources/files/Financial-Sector-Science-Based-Targets-Guidance-Pilot-Version.pdf>

⁷⁰ PCAF (2020). *The Global GHG Accounting and Reporting Standard for the Financial Industry. First edition*. <https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf>



This is fully consistent with an MPS. If a bank has better quality data on its property collateral than just the EPC ratings, such as energy consumption per square metre or emissions per area (net or gross), then it could also chose this metric to establish an MPS trajectory. Emissions per net usable buildings area (kgCO₂e/m²) is the metric preferred for real estate when achieving a Climate Bond Standard (“CBS”) certificate, however CBS also considers EPCs as a second-best proxy. CBS also promotes a portfolio-based approach⁷¹ to real estate Paris-compliance for climate bonds which uses a straight-line reducing trajectory to zero emissions per square metre by 2050, which would also lead to MPS compliance.

Each MPS portfolio will contain some “hard-to-treat” homes (those which due to size, historic status, location, access to grid or age require unusually high amounts of investment to improve) but also “low-hanging fruit” (those that are highly cost effective to upgrade, such as those with oil-heating, no insulation, and in large, old apartment blocks) and an array of those somewhere in-between. A portfolio prioritisation approach will result from an MPS and different compliance strategies are described in the next chapter.



⁷¹ CBI. (2020). *Buildings Criteria: The Buildings Criteria for the Climate Bonds Standard & Certification Scheme*. Retrieved from https://www.climatebonds.net/files/files/standards/Buildings/Low%20Carbon%20Building%20Criteria_V_1_1_July2020.pdf

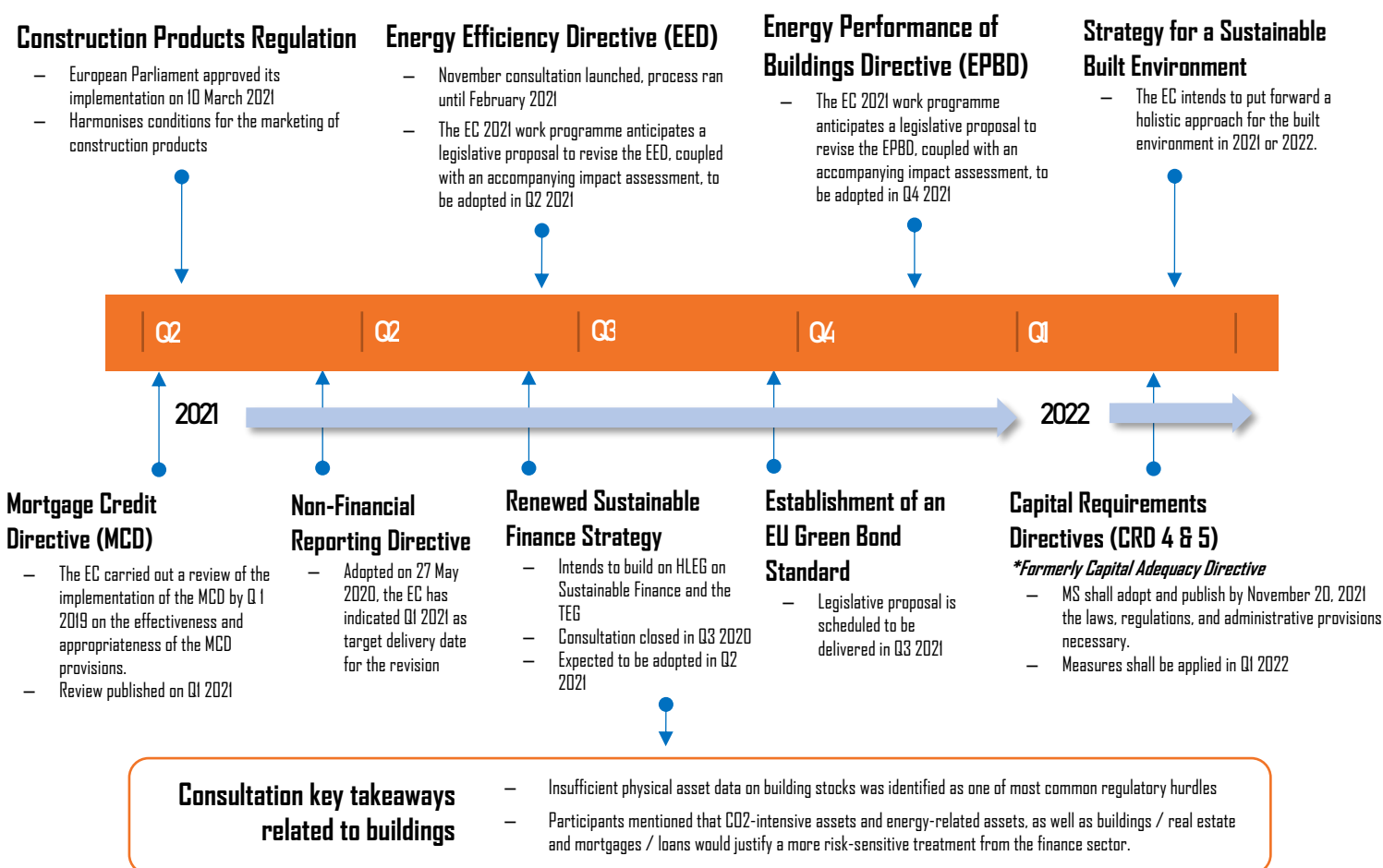


EU Regulatory
choices that can
support MPS

This chapter describes the current approach to EU buildings and finance regulation and how a mortgage portfolio standard could fit, and make them "fit for 55". Portfolio mandates were included in articles 5 (for utilities) and 7 (for public buildings) in the Energy Efficiency Directive. A mortgage portfolio standard can be included in article 10 of the Energy Performance of Buildings Directive (EPBD). This MPS would align with the EU Taxonomy, and other EU Financial regulation that can accelerate banks proactive engagement in buildings renovation. A duty of advice and information on building energy performance can be included in the mortgage credit directive (articles 13 and 14), and an improved capital treatment for lending to highly energy efficient buildings can be considered under CRD IV, the essence of a green supporting factor and aligned with EBA approaches.

Buildings are the most common-place and valuable assets used to back financial obligations for individuals and companies, and yet the nexus created by buildings as financial collateral has yet to be fully addressed in the context of EU's climate and renovation ambitions and regulations.

Until now, the regulatory environments for buildings and finance have been firmly separate, with different approaches, different legislation, and separate sets of sector stakeholders engaging in different stakeholder-led processes with very different styles at EU-level. This has led to a technical standards and certification-led approach for buildings regulation, and a macroeconomic, stability and transparency-led sector agnostic approach for financial regulation. This can change with the increasing awareness that the Paris Agreement's targets cannot be met without the alignment of private finance. The timeline below shows the profusion of relevant EU legislation being reviewed in 2021-22 that impacts the buildings-finance-climate universe.



Sources: European Parliament (2021) and European Commission (2021)

The following sections review buildings and financial regulations up for review at the EU level to determine how they can be aligned to support the uptake of a Paris-aligned Mortgage Portfolio Standard in Europe.



Regulation of Buildings

Notwithstanding the fact that improving the energy performance of buildings has been at the heart of EU energy and climate legislation for two decades, transposition has been slow and of variable quality, and renovation rates have remained largely flat. Two main pieces of EU legislation regulate the efficiency of buildings: the Energy Performance in Buildings Directive (EPBD) and the Energy Efficiency Directive (EED).

Addressing the Energy Performance of Buildings: EPBD

Adopted in 2002, recast in 2010, and amended in 2018 as a part of the Clean Energy Package⁷², the Energy Performance of Buildings Directive (EPBD) provides the current framework for the decarbonisation of Europe's building stock by 2050. A significant overhaul to the current regulatory framework for buildings is required if the EU plans to meet its increased climate ambition and be "fit for 1.5 degrees".

The principal elements of the existing EPBD framework designed to support national governments to boost the energy performance of buildings include:



- Establishing that all new buildings (2021+) must be nearly zero-energy buildings (NZEB);
- Establishing minimum energy performance requirements for major renovations and key retrofit elements (e.g. HVAC, roofs and walls);
- Requiring Energy Performance Certificates are required when a building is sold or rented, and MS must keep a national database for these;
- Ensure that Member States make available financial incentives and remove market barriers and promote the most relevant such instruments;
- Transparency for lists of national financial measures to improve the energy performance of buildings;
- Countries need inspection schemes for heating and air conditioning systems;
- Introducing a voluntary scheme for 'smart readiness' of buildings, as well as promoting smart technologies, including building automation and control systems, and devices that regulate temperature at room level; and
- The consideration of the health and well-being of building users is addressed, through air quality and ventilation.

EPBD recast (article 2a) calls for each member state to establish and revise long-term renovation strategies⁷³ (LTRS) to support the renovation of both residential and non-residential buildings (public and private), to decarbonise their building stock by 2050. It also requires Member States to consider mobilising public and private investment for the renovation of the national building stock as a core component of their LTRS.

⁷² European Commission. (2021). *Clean Energy Package*. [Website]. Retrieved from https://ec.europa.eu/energy/topics/energy-strategy/clean-energy-all-europeans_en

⁷³ Official Journal of the European Union. (2018). *Amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency*. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1529483556082&uri=CELEX:32018L0844>

The EPBD is under review in 2021⁷⁴ to make it fit for Europe's new climate ambitions and to help deliver a wave of new renovations, 35+ million by 2030. In this context, the EPBD will need all building owners to be well informed by all transparent and available data that makes energy performance visible, measurable and in clear-cut cases mandatory – as climate performance moves closer to structural integrity as a safeguard in public opinion. This will require improved metering technologies, uniform EU machine-readable data, buildings passports, minimum energy performance standards and more stringent provisions on availability and accessibility of the data components of Energy Performance Certificates (EPCs) as well as the development of smart tools to support monitoring and promote renovation.



Financial institutions' have identified key barriers that prevent greater investment in energy efficiency in buildings, two stand-out: the lack of basic energy performance and other technical data; and the challenge of stimulating and aggregating demand for renovation of millions of their customer's properties.

In an EU with stronger data and transparency obligations and intending to introduce mandatory minimum energy performance standards (MEPS) for existing buildings, a mortgage portfolio standard (MPS) would align financial sector stakeholders to deliver residential renovation wave targets in a sophisticated manner. In fact an MPS would ensure mortgage lenders design and offer their clients the kind of renovation finance offers which Governments have been unable to do to date for millions of homeowners a year.

EPBD Article 10, section 4 provides the Commission the right opportunity to work with Member States and establish MPS requirements on mortgage lenders alongside their public-backed financial support programmes to increase energy efficiency in buildings. Mortgage Portfolio Standards are best practice tools that align mortgage lenders operating in Europe's interests with those of their clients to support access to energy renovation finance. ***Under a revised Article 10, the Commission can require financial regulators to mandate MPS as a recommended approach to manage transition risk in real estate lending and EU mortgage portfolios.***

⁷⁴ European Commission. (2021). *Public consultation launched on revising the Energy Performance of Buildings Directive*. [Website]. https://ec.europa.eu/info/news/public-consultation-launched-revising-energy-performance-buildings-directive-2021-mar-30_en

Delivering Energy Efficiency Targets with mandates exemplified by Energy Efficiency Directive

The Energy Efficiency Directive (EED) was agreed in 2012 to ensure that 2020's 20% energy efficient improvement target (vs 2005) was met, and contained a set of binding measures⁷⁵. Two of the EED's central mandatory components require energy suppliers to deliver energy savings to their customers, and for public building owners to kick-start the commercial buildings renovation market:

1. **EED article 7⁶** mandates member states to use an energy efficiency obligation scheme (EEOS) or alternate measures⁷⁷ (including standards and norms, and energy labelling schemes) to achieve equivalent annual energy savings. Current energy efficiency
2. **EED article 5⁸** documents the "Exemplary role of public bodies' buildings" and from 2014 mandated member states to renovate 3% annually of the total floor area of central government-owned and –occupied buildings with heating/cooling.

In response to EED article 5, some regions like the Belgian region of Wallonia have essentially set a portfolio standard target of EPC level "A" for its public buildings⁷⁹.

Wallonia – Pioneering the use of portfolio standards in the public sector

The Wallonia Region (Belgium), has an LTRS⁸⁰ mandating public buildings to reach an "A" label EPC by 2030 and schools by 2035⁸¹. Given that public buildings are often visited, this example of the successful use of MEPS will serve as a foundation in the eyes of the public of the benefits of increasing energy performance, and as a test to then expand MEPS to the different segments that make up the building stock in Belgium.

⁷⁵ European Commission. (2021). *The 2012 energy efficiency directive*. [Website]. Retrieved from https://ec.europa.eu/energy/topics/energy-efficiency/targets-directive-and-rules/energy-efficiency-directive_en

⁷⁶ European Commission. (2021). *Document 52013SCD451*. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52013SCD451>

⁷⁷ Other alternative measures include: energy efficiency national fund, energy or CO₂ taxes, financing scheme or fiscal incentive, regulation or voluntary agreements, training and education, and other policy measures.

⁷⁸ European Commission. (2021). *Document 52013SCD445*. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52013SCD445>

⁷⁹ Renovate Europe. (2021). *Renovate Europe calls to strengthen Article 5 of the Energy Efficiency Directive*. Retrieved from <https://www.renovate-europe.eu/wp-content/uploads/2018/09/REC-calls-for-stronger-Article-5-in-EED.pdf>

⁸⁰ Wallonie énergie SPW. (2021). *Stratégie wallonne de rénovation*. [Website]. Retrieved from <https://energie.wallonie.be/fr/strategie-de-renovation.html?IDC=9580>

⁸¹ Renovate Europe. (2018). *Checklist What Buildings Elements in the National Recovery Plans?* Retrieved from <https://www.renovate-europe.eu/wp-content/uploads/2018/09/Checklist-What-Buildings-Elements-in-the-National-Recovery-Plans.pdf>



In a review of the EED, its approach to energy suppliers can be mimicked for finance suppliers. An MPS for all financial institutions providing real estate backed lending and mortgages would match EED's approach to aligning utilities with the EU's climate targets. Finance providers would set portfolio standards that would in turn accelerate their offering and implementation of green mortgages⁸² and the provision of renovation solutions to retail clients. After all, energy suppliers were not incentivised to create customer savings prior to energy efficiency obligations, and in many ways financial institutions stand more to gain through adopting MPS (as more finance is required) than obliged energy suppliers could under article 7 in 2012.



At present, financial institutions and mortgage providers are not directly implicated in either the EPBD or EED, and yet they are a major stakeholder in buildings and have a facilitating role and implication in maintaining the value of their real estate and property collateral. With support in EED/EPBD an MPS could be positioned to support the delivery of the objectives of the Renovation Wave⁸³ by engaging with finance providers to work with their clients to:

- increase the rate, quality and depth of renovations;
- modernise mortgaged buildings in the light of new technologies and the changing climate;
- remove financial barriers and finance-related market failures;
- develop the remaining cost-effective potential among their clients in the energy demand side in buildings;
- increase mortgage holders and renovation borrowers awareness and involvement;
- extend public-backed finance products (using guarantees) to all European citizens with home to experience more affordable and healthy housing conditions;
- decrease administrative burdens and help simplify the legislative framework.

A mortgage portfolio standard obligation can be included in EPBD article 10 leveraging for mortgage suppliers the approach under article 5 of the EED to energy suppliers. This can also be achieved in the upgrade of the Energy Efficiency Directive through the incorporation of an MPS for mortgage lenders in a new article.

⁸² BEUC. (2021). *UNE FAUSSE BONNE IDÉE: WHY EXTENDING EMISSIONS TRADING (ETS) TO ROAD TRANSPORT AND BUILDINGS IS NOT RECOMMENDABLE*. Retrieved from https://www.beuc.eu/publications/beuc-x-2021-011_une_fausse_bonne_idee_why_extending_emissions_trading_ets_to_road_transport_and_buildings_is_not_recommandable.pdf

⁸³ 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

Financial Regulation

European financial sector regulation has naturally focused on bank stability, adequate capitalisation, risk management, financial reporting, fraud protection, anti-money laundering, customer protection, interest alignment and fee transparency. Further, specific financial product regulations cover consumer protection and streamlining in the case of mortgages and consumer credit (via respectively the EU Mortgage and Consumer Credit Directives).

The EU has led the world in the integration of climate change into its financial sector, covering climate risk disclosure, green bond labels, a taxonomy for adaptation and mitigation and risk management oversight directives. The EU Taxonomy regulation came into force in July 2020 and can now be applied with mitigation and adaptation criteria agreed in a first delegated act in May 2021.

The following sections each describe how the key components of existing EU-level financial regulation can be supported, and support, Mortgage Portfolio Standards. In order: EU Taxonomy defines levels of green for renovation and new-build, Mortgage Credit Directive (MCD) supports transparent information flow, Capital Requirements Directive (CRD) can offer a carrot for energy efficient buildings through lower capital requirements, and finally how MPS can support the growth of the EU Banking Authority (EBA)'s Green Asset Ratio (GAR):

Mortgage Portfolio Standards supports Bank Compliance with EU Taxonomy

EU Taxonomy provides first-ever guidance to investors on the activities that provide significant contributions to climate mitigation and adaptation, and identifies those that do significant harm to the EU's six key environmental objectives. These thresholds, when coupled with reporting obligations in the Non-Financial Reporting Directive, require large, listed companies, and banks, provide more comparable and objective sustainability and environmental reports and products.

The EU Taxonomy defines new green buildings as those where the Primary Energy Demand (PED) is 10% lower than the national nearly zero-energy building (NZEB) requirements, as documented in an Energy Performance Certificate (EPC). For buildings of over 5000m²⁸⁴, the life-cycle emissions resulting from each stage in the construction life cycle must be calculated and disclosed to investors on demand. For new buildings of less than 5000 m², testing for airtightness and thermal integrity are required to identify any defects in the building envelope and have them disclosed to investors and clients.

For green renovations, the EU Taxonomy requires that there is a minimum 30% measured reduction in primary energy demand (excluding own or guaranteed origin certified renewable energy production), at once or through a succession of measures within a maximum of three years. Alternatively, the energy performance of the green renovation must meet cost-optimal minimum energy performance requirements as described in the applicable national and regional building regulations for 'major renovation' implementing EU Directive 2010/31⁸⁵.

Clearly, the design of Mortgage Portfolio Standards must reflect the language of the EU Taxonomy and its definitions, making banks adopting MPS greener faster.

⁸⁴ European Commission. (2021). *Explanatory Memorandum: I.Context of the Delegated Act*. Retrieved from [https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=PL_COM:ares\(2020\)6979284&rid=2](https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=PL_COM:ares(2020)6979284&rid=2)

⁸⁵ Official Journal of the European Union. (2021). *European DIRECTIVE 2010/31/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 May 2010 on the energy performance of buildings (recast)* [Website]. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32010L0031>



Duty of Advice and Information from a revised Mortgage Credit Directive⁸⁶

The EU market for mortgage credit is fragmented nationally and there are various obstacles that prevent a fluid EU cross-border single market for mortgages. Introduced in 2014, and applicable to all loans available to consumers purchasing residential property, the Mortgage Credit Directive (MCD) seeks to confer EU consumers with greater rights by harmonising the market for mortgage credit, and promoting common standards. The MCD achieves this through obligations on lenders including:

- Lenders are obliged to offer consumers clear and detailed information on loan conditions according to a European Standardised Information Sheet (ESIS);
- Lenders are obliged to assess consumers' creditworthiness according to common EU standards;
- Common quality standards and business conduct principles are applicable to all EU lenders;
- Consumers have the right to repay credit at an earlier date than determined in a contract;
- An EU passport scheme permits credit intermediaries authorised to operate in any EU MS to deliver those services also in any other; and
- Lenders need to offer an annual percentage rate of charge (APRC) calculator which reveals the cost of a loan to the consumer expressed as % of the total value of the loan.

In 2020, the EC indicated that a revision of the MDC could address new operators and new kinds of consumer credit, it highlights digital data issues, an unclear assessment of creditworthiness, and the absence of protection for lenders and borrowers when faced with a major disruptive event⁸⁷.

There have not been many debates in the context of MCD that relate to the changing values and risks of mortgage collateral resulting from climate change, nor about any duty of care to mortgage clients in informing them of the climate or transition risks of their homes and property. This is a clear example of the silo-centric approach to financial, climate and buildings regulatory processes which must change to deliver EU commitments under the Paris Agreement.

⁸⁶ European Commission. (2021). *Mortgage credit*. [Website]. https://ec.europa.eu/info/business-economy-euro/banking-and-finance/consumer-finance-and-payments/retail-financial-services/credit/mortgage-credit_en

⁸⁷ European Parliament. (2021). *Revision of the Consumer Credit Directive (REFIT) / before 2021-07*. [Website]. [https://www.europarl.europa.eu/legislative-train/theme-a-new-push-for-european-democracy/file-revision-of-consumer-credit-directive-\(refit\)](https://www.europarl.europa.eu/legislative-train/theme-a-new-push-for-european-democracy/file-revision-of-consumer-credit-directive-(refit))



BBVA launches a mortgage designed to upgrade homes to EPC-A

Spain's BBVA is a green leader. In 2020, the Dow Jones Sustainability Index (DJSI), ranked it as the second most sustainable bank in the world. In 2021, BBVA is a founding member of the Net-Zero Banking Alliance⁸⁸ (NZBA), whose mission is to ensure that their members' credit and investment portfolios are carbon neutral by 2050.

Mortgages account for 55% of BBVA's retail portfolio⁸⁹, and the bank has carried out detailed analysis in Spain, looking to establish a relationship between energy efficiency of the buildings it finances and the clients' probability of default and arrears. The analysis includes an assessment of the collateral value and the coverage proportion with respect of the energy efficiency of the building, to also assess any potential impact on the loss given default (LGD) variations due to energy performance.

BBVA uses PACTA to steer its lending portfolios with climate scenarios compatible with the objectives of the Paris Agreement. PACTA's methodology has allowed BBVA to focus on sectors with the greatest climate impact -such as cement and steel⁹⁰- and their supply chain for production. Furthermore, BBVA advocates the social as well as energy dimension of home renovation to tackle high energy prices and sustainability for customers to rally behind it.

Fixed-rate *Casa Eficiente* Mortgage⁹¹

Launched in 2020, it is directed at Spanish clients who want to purchase an energy efficient home. The green mortgage has a fixed interest rate throughout the duration of the loan (fixed 2% NIR for 15 years and 2.50% APR⁹²), and clients can request to finance up to 80% of the main residence and 70% of a second home. **The main requirement to access the *Casa Eficiente* Mortgage is to present the "A" energy label certificate of the property they would like to purchase. They can request it from the seller or from an ESCO.**



⁸⁸ BBVA. (2021). *BBVA joins the net zero emission banking alliance promoted by UN*. [Website]. Retrieved from <https://www.bbva.com/en/sustainability/bbva-joins-the-net-zero-emission-banking-alliance-promoted-by-the-united-nations/>

⁸⁹ BBVA. (2020). *BBVA Report on TCFD*. Retrieved from https://shareholdersandinvestors.bbva.com/wp-content/uploads/2020/10/BBVA-report-on-TCFD_Eng.pdf

⁹⁰ BBVA. (2021). *Annual Report 2020: Non-financial Information Report*. [Website]. Retrieved from <https://accionistasinversores.bbva.com/microsites/cuentasanuales2020/en/management-report/non-financial-information-report/index.html>

⁹¹ BBVA. (2021). *Fixed-rate Casa Eficiente Mortgage*. [Website]. Retrieved from <https://www.bbva.es/en/personas/productos/hipotecas/hipoteca-casa-eficiente-tipo-fijo.html>

⁹² Taking out other products with the loan gives clients the option of a 1% NIR and 1.71% APR over 15 years



One way to ensure that borrowers are informed of climate transition risks attached to their property is by amending the general information Article 13 of MCD. Art 13 presently requires Member States to ensure creditors make available clear and comprehensible general information about credit agreements in at least 14 specifically identified categories. Article 14 then develops this general information by defining a European Standardised Information Sheet (ESIS) that is defined in an annex to MCD and required as a pre-contractual information to be provided to the borrower.

An Energy Performance Certificate can be included in the specific terms of an ESIS as a required pre-contractual document and included in article 13. Further, in article 14 the creditor can have a duty of information to make the borrower aware of any climate or transition risks that it reasonably may assess itself in respect of the property. And finally, article 14 could include a duty of advice to provide the borrower with an estimate of a Paris-compliant deep renovation, recognising that point of purchase is one of the likely triggers for renovation.

Energy Renovation supporting factor? How the Capital Requirements Directive can consider climate transition risk, or the lack of it, in green property

Formerly known as the Capital Adequacy Directive, the Capital Requirements Directive (CRD) is exploring the incorporation of ESG risks into bank supervision. More specifically, the EBA is required to estimate if it is necessary to include ESG risks in the (annual) Pillar II (CRD IV Article 97) prudential supervisory review and evaluation process (SREP⁹³) conducted by national prudential regulators.

Buildings' climate risks for banks are well described by the task force on climate-related financial disclosures (TCFD) and they relate to both the risk of physical climate damage and future regulatory redundancy (transition risk). Already 19% of European retail spaces and 16% of offices, sampled by Four Twenty Seven⁹⁴ from a database of one million corporate facilities, are exposed to floods and/or sea level rise. Further, 85% of European buildings will need renovation to fit into a net-zero emissions economy in 2050⁹⁵, and a wave of 35+ million of these are expected to have been substantially renovated by 2030⁹⁶.



⁹³ ECB. (2021). *SSM LSI SREP: Methodology 2020 edition*. Retrieved from https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.srep_methodology_booklet_lsi_2020.en.pdf?eb5bd834eff4d97e8be0063ff2c8a15e

⁹⁴ 427. (2019). *Real Estate Climate Risks: How Will Europe be Impacted?*. Retrieved from https://427mt.com/wp-content/uploads/2019/09/Europe-real-estate-risk-9.10.2019_web.pdf

⁹⁵ Energy in Demand. (2020). *Understanding Europe's Renovation Wave*. [Website]. Retrieved from <https://energyindemand.com/2020/10/17/understanding-europes-renovation-wave/>

⁹⁶ *Ibid.*

UK's Nationwide demonstrates how EPC-level supports credit analysis

Mortgage lending in the UK is close to £127 billion a year with 14.9 million privately owned residential properties in the country. Nationwide is a mutual society and the UK's second largest mortgage lender with assets of £248 billion and over 16.3 million members. Nationwide is also a member of the EFIG's working group "Credit risk loan correlation with asset-level energy efficiency" and has applied the EFIG's insights and methods when assessing the correlation between energy efficiency and credit risk.

Nationwide incorporated EPC data from the UK's Ministry of Housing, Communities & Local Government (covering 19 million properties in England and Wales) into its own mortgage portfolio property database. It developed a series of algorithms to improve the match the EPC database with its portfolio and achieved a 64% match rate. Nationwide's modelling team used the modelling approach publicised by a recent Bank of England study⁹⁷ showing lower probability of default of energy efficient mortgage properties. Through on-going research and methodology discussions with the EFIG, Nationwide's statistical analysis shows two clear results to a tangible level of accuracy:

- **There are significant differences** in a properties' owner's likeliness to default between ratings (A/B/C/D). This analysis was undertaken by overlaying the EPC data of properties using the internal ratings based (IRB) approach of Nationwide with CRR / EBA compliant default definitions.
- **The Nationwide model** identifies a statistically significant difference in default probability between High (A/B/C), Medium (D) and Low energy efficient properties (E, F and G). Nationwide's model uses the IRB default definition and a reduced form of financial difficulty, which includes serious missed payments (over 3 months in arrears).

The analysis demonstrates correlation between energy efficiency and default and the hypothesis has been further tested controlling for customer wealth, property, and mortgage characteristics that could also affect this relationship. These results suggest that the inclusion of energy efficiency information in mortgage scorecards might have the potential to improve the power of the scorecards and improve accuracy.

The Green Reward – Encouraging energy efficient homeownership⁹⁸

Launched in the second quarter of 2021, as part of Nationwide's 2030 commitment to ensure that 50% of its mortgage book has a "C" EPC rating or above, the Green Reward is a cashback incentive whose purpose is to incentivise the purchase of more energy efficient homes. Clients purchasing a home with an "A" EPC rating or a Standard Assessment Procedure (SAP) of 92 or above will receive £500. Those purchasing a home with a "B" EPC or SAP 86 will benefit from £250. This incentive is available for any property (house, flat or new-build) meeting the energy criteria.

⁹⁷ Bank of England January 2020, retrieved here: <https://www.bankofengland.co.uk/working-paper/2020/does-energy-efficiency-predict-mortgage-performance>

⁹⁸ Nationwide. (2021). *Nationwide launches cashback incentive to encourage energy efficient homeownership*. [Website]. Retrieved from <https://www.nationwidemediacentre.co.uk/news/nationwide-launches-cashback-incentive-to-encourage-energy-efficient-homeownership>



As prompted by CRD, the EBA is considering ESG risks (including physical and transition climate risks), and to take into account the potential depreciation of assets stemming from regulatory changes; as well as a set of qualitative and quantitative criteria to determine the repercussions of ESG related risks on financial institutions. This review will also cover the provision of mechanisms, strategies and tools for financial institutions to properly manage ESG risks. The EBA is expected to submit a full report to the EC, Parliament, and Council in late June 2021⁹⁹ for its review and -if suitable- the incorporation of ESG related risks into the prudential supervisory review and evaluation process.

Mortgage Portfolio Standards in the context of a climate stress test¹⁰⁰

Under article 98 (8) of CRD IV¹⁰¹, the EBA is required to develop a dedicated climate change stress test. The purpose is to single out a bank's degree of vulnerability to climate risks and to evaluate the dimension of those exposures that could be hit by physical and transitional risks. Clearly, financial institutions would be well informed through an understanding of the energy performance of its existing mortgage collateral and the trajectory necessary to maintain its value, and as a mitigation action have a mortgage portfolio standard for EE.

Given that the role of financial institutions in the climate transition is clearly central to this regulatory review, and their central role in managing risks for society – climate risk being a critical and presently under-appreciated long-term risk – the real estate asset class is central to this review.

Physical and transition climate risks need to be considered by all financial institutions in the calculation of their capital requirements and in stress tests. A mortgage portfolio standard, while probably too specific a tool for direct inclusion in CRD, can be referenced by the EBA as an element of the promotion of increasing Green Asset Ratio (see next page). Finally, if evidence shows that mortgages extended to higher energy performing properties exhibit lower defaults and arrears, then this evidence should feed into the models and capital adequacy calculations regulated by CRD.

⁹⁹ EBA. (2021). *EBA launches public consultation on draft technical standards on Pillar 3 disclosures of ESG risks*. [Website]. Retrieved from <https://www.eba.europa.eu/eba-launches-public-consultation-draft-technical-standards-pillar-3-disclosures-esg-risks>

¹⁰⁰ EBA. (2019). *EBA ACTION PLAN ON SUSTAINABLE FINANCE*. Retrieved from https://www.eba.europa.eu/sites/default/documents/files/document_library/EBA%20Action%20plan%20on%20sustainable%20finance.pdf

¹⁰¹ Article 98(8) of CRD IV. Found in: EBA. (2021). *Capital Requirements Directive (CRD) > TITLE VII > CHAPTER 2 > Section III > Article 98*. Retrieved from <https://www.eba.europa.eu/regulation-and-policy/single-rulebook/interactive-single-rulebook/101278>

Mortgage Portfolio Standards for Energy Efficiency as support to grow a Green Asset Ratio (GAR)

Publication of a green asset ratio (GAR) for financial institutions will show the alignment of lenders' activities with the EU Taxonomy, and – assuming EU Taxonomy criteria are science-backed - the Paris Agreement. A GAR is envisaged by the European Banking Authority ("EBA") to cover all lending including to SMEs, households (residential real estate, house renovation loans and motor vehicle loans), local governments, municipalities (house financing) and cover loans, advances, debt securities, equity instruments and repossessed real estate collateral.

In a recent communication to the EU Commission¹⁰², the EBA suggested that financial institutions can determine the level of alignment of each lending exposure using the EU Taxonomy thresholds on a case-by-case basis. For residential real estate loans, commercial real estate exposure, housing loans to municipalities, and repossessed real estate collateral, EBA underlying collateral/asset, based on the energy performance certificate label (EPC), in line with the screening criteria proposed in the EU Taxonomy. Overall EBA recommends that financial institutions disclose a GAR at EU level¹⁰³, for exposures to EU counterparties – recognising that getting transparent disclosure from non-EU counterparties would be initially difficult.



At present, under 8% of bank balance sheets are aligned with the EU Taxonomy criteria¹⁰⁴, and this increases to 23% when just considering those covered by the current EU Taxonomy thresholds. The implication is that today over three-quarters of EU bank Taxonomy-relevant lending is not yet aligned with the Paris Agreement. *A mortgage portfolio standard is the perfect tool for banks to address this GAR transition to full alignment of buildings-backed lending. Together with increased information transparency, reporting requirements and capital incentives, MPS would encourage mortgage lenders to work with homeowners and building-owner clients to renovate, improve homes and save energy.*

¹⁰² EBA. (2021). *Advice to the Commission on KPIs and Methodology for Disclosure by Credit Institutions and Investment Firms under the NFRD on How and to What Extent their Activities Qualify as Environmentally Sustainable According to the EU Taxonomy Regulation*. Retrieved from https://www.eba.europa.eu/sites/default/documents/files/document_library/About%20Us/Missions%20and%20tasks/Call%20for%20Advice/2021/CfA%20on%20KPIs%20and%20methodology%20for%20disclosures%20under%20Article%208%20of%20the%20EU%20Taxonomy%20Regulation/963616/Report%20-%20Advice%20to%20COM_Disclosure%20Article%208%20Taxonomy.pdf

¹⁰³ EBA. (2021). *EBA advises the Commission on KPIs for transparency on institutions' environmentally sustainable activities, including a green asset ratio*. Retrieved from <https://www.eba.europa.eu/eba-advises-commission-kpis-transparency-institutions%20environmentally-sustainable-activities>

¹⁰⁴ EBA. (2021). *Mapping climate risk: Main findings from the EU-wide pilot exercise*. Retrieved from https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2021/1001589/Mapping%20Climate%20Risk%20-%20Main%20findings%20from%20the%20EU-wide%20pilot%20exercise%20on%20climate%20risk.pdf



Under 8% of banks' balance sheets

are aligned with the:

TAXONOMY

$\frac{3}{4}$ + of EU bank Taxonomy-relevant lending is not yet aligned with:



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A Mortgage Portfolio Standard

Is a perfect tool for banks to address this Green Asset Ratio (GAR):

Together with:

- Increased information transparency
- Reporting requirements
- Capital incentives





Conclusions and Recommendations



The building sector has so far struggled to “self-organise” in the face of increasing climate ambition and the opportunity to cost effectively save energy, improve performance, and deliver local jobs through renovation. The rate of building renovation is still at 1%, while it should be at 3% to realise Europe’s climate ambition, and the depth of renovation is also insufficient. This is largely because building ownership is highly fragmented, buildings are non-standard, renovation requires individual and collective decisions, most renovation contractors are SMEs or local artisans, upfront investment amounts are high, and administrative burdens/ transaction costs are significant. Furthermore, current EU regulation is clearly not delivering necessary speed and depth of renovation of the existing building stock and therefore the necessary GHG emission reduction to deliver EU targets.

Yet, as one of Europe, and Europeans’, most valuable assets, buildings are not “just” homes, hospitals and workplaces. They are part of a nation’s cultural assets and often worth more sentimentally than the sum of the services they provide for many European owners, and this ownership can also be the source of inter-generational tensions. For these reasons, the proactive engagement in energy performance-led renovation by the providers of mortgages and real estate finance, backed by Government policy and public financial guarantees, can address this, has a chance to rationalise the buildings challenge and can boost the renovation wave.

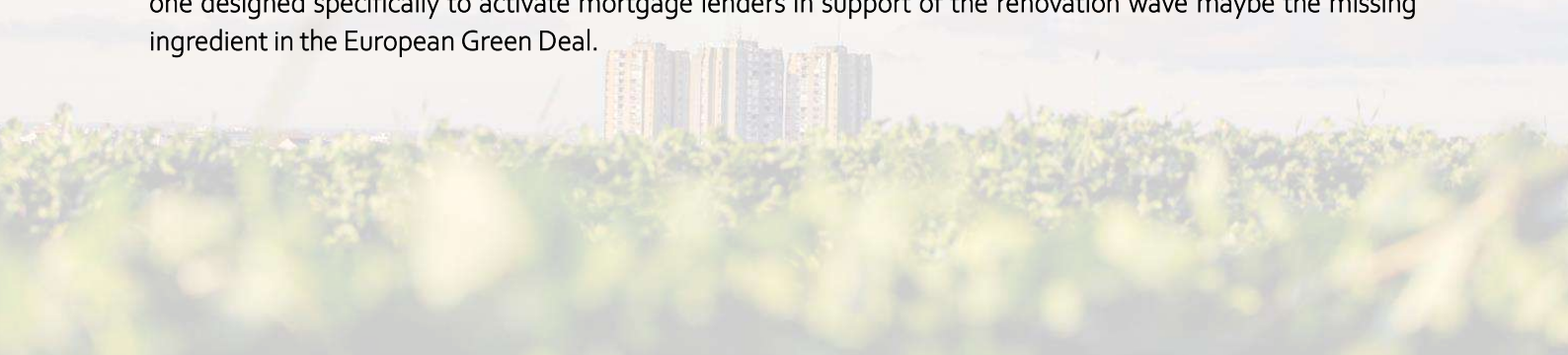
Portfolio standards are successful regulatory tools that have proven their worth decarbonising electricity in the USA and vehicles in Europe. When applied by banks to their tens of millions of mortgages, Mortgage Portfolio Standards (MPS) are already driving transparency and rapid change for those green leaders who are already voluntarily using them.

The time to regulate to support an EU renovation wave is now as the EU aligns buildings and financial regulations with its commitments under the Paris Agreement. Building regulations (Energy efficiency and the Energy Performance in Buildings Directives) are being reviewed to deliver a 55% greenhouse gas emission reduction by 2030. **The inclusion of an MPS for property and real estate backed lending, to accompany recovery grants and the extension of long-term, low-cost public-backed renovation funding offered through banks, are the kind of ingredients which can deliver at least 35 million renovations by 2030, with an expected investment requirement of €2.75 trillion.**

Financial regulation also needs to be upgraded to inform on and protect buildings owners from climate risks, both physical and transitional. Mortgage lenders can inform and advise clients in the context of purchase, refinancing and the servicing of their relationships and include relevant energy performance certificates in mortgage documentation through the Mortgage Credit Directive. Banks can use an MPS to boost energy performance transparency and renovation action with customers and benefit from future capital requirement reductions as climate and related credit risks are mitigated in mortgage portfolios through upgrading the value and energy performance of their collateral.

Lenders looking to boost the share of their green assets can lever the MPS approach to identify which mortgage customers to engage with, act as a channel for technical assistance and provide quality control for the renovations which are subsequently applied as they need to meet the thresholds required by the EU Taxonomy.

After all, surely banks are to mortgages what utilities are to energy, or manufacturers to cars. Each manages a valuable customer relationship that is built around the provision of finance, energy or mobility. The need and speed required to mitigate climate change, and the regulations required to prevent it from massively degrading our planet, requires the engagement of powerful allies managing millions of human relationships to align their products and approaches to be fit for a 1.5-degree world. **Portfolio standards have shown they can work, and one designed specifically to activate mortgage lenders in support of the renovation wave maybe the missing ingredient in the European Green Deal.**



Acronyms

APR	Annual percentage rate
APRC	Annual percentage rate of change
B2DS	Beyond 2°C Scenario
CBS	Climate Bond Standard
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
CRD	Capital Requirements Directive
CRREM	Carbon Risk Real Estate Monitor
DJSI	Dow Jones Sustainability Index
EBA	European Banking Authority
EC	European Commission
EED	Energy Efficiency Directive
EEFIG	Energy Efficiency Financial Institution Group
EEOS	Energy efficiency obligation scheme
EPBD	Energy performance of buildings directive
EPC	Energy performance certificate
EU	European Union
EV	Electric vehicle
ESCO	Energy service company
ESG	Environmental, Social, and Corporate Governance
ESIS	European Standardised Information Sheet
ETP	Energy Technology perspectives
FES	Fleet emission standards
GAR	Green asset ratio
GW	Gigawatt
GHG	greenhouse gas
HVAC	Heating, ventilation, and air conditioning
IEA	International Energy Agency
kgCO ₂ e/m ²	Carbon dioxide equivalent emitted per square meter
LTRS	Long-term renovation strategies
MEPS	Mandatory Minimum Energy Performance Standards
MCD	Mortgage Credit Directive
MPS	Mortgage Portfolio Standard
MUSH	Municipalities, universities, schools, and hospitals
MS	Member State
NECP	National energy and climate plans
NIR	Nominal Interest Rate
NZBA	Net-Zero Banking Alliance
NZEB	Nearly zero-energy building
PCAF	Partnership for Carbon Accounting Financials
PD	Probability of default
PED	Primary Energy Demand
RE	Renewable electricity
RPS	Renewable portfolio standards
SBTi	Science Based Targets initiative
SDAs	Sectoral Decarbonisation Approaches
SMEs	Small and medium-sized enterprises
SREP	Supervisory review and evaluation process
TCFD	Task force on climate-related financial disclosures
UNEP FI	United Nations Environment Programme Finance Initiative
UK	United Kingdom
US	United States



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APPENDIX: The Structured interview questions presented to build the frame of the conversation

In general, each interviewee was provided with the set of questions set out below and asked to comment on the areas they felt informed to comment upon:

- Initial impressions of existing practices in buildings finance and upcoming regulations expected in 2021, including:
 - Minimum Energy Performance Standards (MEPS): In a few member states MEPS have been introduced, and noting that mandatory MEPS are called for by the Renovation Wave strategy using enhanced Energy Performance Certificates (EPCs). Can you share your views of MEPS?
 - Do you use CRREM (<https://www.crrem.eu/>) or another asset or portfolio management tool to manage energy or carbon emissions?
 - What do policymakers need to keep in mind when designing and implementing MEPS in the buildings sectors (Public, commercial, MUSH, Residential)?
- Are EPCs an opportunity to further energy efficiency measures in buildings?
 - A number of banks have voluntarily introduced the use of EPCs for lending purposes, sometimes ahead of local and/or EU regulation.
 - Will this help to green banks' portfolios, or are additional tools required?
 - What data in an EPC is the most interesting to banks?
- A mortgage portfolio standard (MPS) for energy efficiency would be based on proven fleet emission standards (FES) for vehicle manufacturers globally and renewable portfolio standards (RPS) used successfully with US utilities:
 - What potential do MPS have to lever the power of mortgage lenders to support the delivery of the EC's intended Renovation Wave, and its co-financing?
 - Do you see differences in its application in different MS? Or within different customer or building market segments?
 - How do you see MPS aligning banks' real estate and mortgage assets with the emissions intensity trajectories of the EU climate and energy targets/ Paris Agreement?
 - In which regulatory process do you see MPS fitting, potentially from the Mortgage Credit Directive, Capital Requirements Directive, EPBD, EED, or others?
- Alignment with Science Based Targets: 55 financial institutions have committed to implementing a SBT and there is a portfolio tool for those with a mortgage lending book (<https://sciencebasedtargets.org/finance-tool>) to make emissions reductions:
 - How does your institution address climate target setting?
 - Do you have any practical experience using the SBT mortgage tool? And if so how did it help?
- Customer dimension/client interaction.
 - In your opinion what is the best way to persuade homeowners to take up energy efficiency related products?
 - Do you think that internal pressure can be created with MPS and will that help tip the sector to become Paris-aligned faster?



Map of European Countries with Public EPC registers

Country	Type of register	Public EPC register	Limited access	No access
Austria	Regional		X	
Belgium	Regional		X	
Bulgaria	Central			x
Cyprus	Central			x
Czech Republic	Central			x
Germany	Central			x
Denmark	Central	X		
Estonia	Central	X		
Spain	Regional	depend on region		
France	Central		x	
Finland	Central			x
Greece	Central			x
Croatia	Central			x
Hungary	Central		x	
Ireland	Central	X		
Italy	Regional	depend on region		
Latvia	Central			
Lithuania	Central	X		
Malta	Central			
The Netherlands	Central	X		
Poland	Central			x
Portugal	Central	X		
Romania	Central			x
Slovakia	Central	X		
Slovenia	Central		x	
Sweden	Central	X		
United Kingdom	Central	X		



Minimum energy performance standards are already in place in some European Member States shown in the following table:

Where	Introduced	Enforced	Building stock sector, tenure, building type	Metric	Minimum standard
The Netherlands	2018	2023	Office buildings	EPC	EPC C
France	2019	2028	Private residential	EPC	EPCE
France	2019	2023	Rented residential	Energy performance	Worst performing defined as using more than 450 kWh/m ² /year
France	2019	2030, 2040, 2050	Large commercial buildings	Energy consumption / performance	40% in 2030, 50% in 2040, 60% in 2050
Flanders, Belgium	2015	2020	All homes, but only enforced for privately rented homes	Technical measures	Minimum roof insulation
Flanders, Belgium	2019	2023	All homes, but only enforced for privately rented homes	Technical measures	Double glazing
Brussels-Capital, Belgium	2019 (Announced) 2021 (Regulation expected)	2030, five yearly to 2050	All domestic and nondomestic buildings	Technical measures	Measures specified by EPC

Source: Santini M. & Sunderland, L. (2021)





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