Ideas for action

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Promoting financing for housing renovation and decarbonization

Recommendations from multi-stakeholder dialogue

alinnea

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alinnea has been a key player in Spain's climate action ecosystem since mid-2024. As part of IE University and supported by the European Climate Foundation, **alinnea** specializes in comparative analysis, identification, and articulation of climate change measures and actions that engage the public and private sectors, as well as civil society.

Operating under a multi-stakeholder, dialogue-research-action framework, **alinnea** seeks to develop solutions that overcome climate action barriers while ensuring they are socially just, economically viable, and beneficial for the environment and biodiversity protection. Between May and October 2025, **alinnea** held working sessions with more than forty stakeholders—from the public and private sectors, the financial sphere, multilateral organizations, the social sector, and academia—with the aim of promoting financing for housing renovation and decarbonization. This process made it possible to gather critical analyses and highly relevant practical experiences.

Drawing on this dialogue, the report provides an in-depth analysis of the main obstacles to financing the renovation of the housing stock and presents recommendations to accelerate this financing.

This report has been prepared by al**innea** and **Spainsif**, which provided technical support during the working sessions.

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Spainsif working team
Pablo Esteban Sánchez,
Deputy Director General
Andrea González, Director General

Alinnea working team
Ana Belén Sánchez, Director
Gemma Bedia, Senior Project Manager, Climate Change

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Executive Summary 01

In 2026, Spain will adopt its own national pathway though the Planes nacionales de renovación de edificios' (PNRE) [National Building Renovation Plans], which will set interim targets to reduce the average primary energy consumption of residential buildings 16% by 2030 and between 20% and 22% by 2035.

The European Commission, in its Recommendation C/2023/1553 of 12 December 2023 on the transposition of Article 30 of the Energy Efficiency Directive, refers to the different types of financing that must be developed and stresses that the public sector should lead by example in improving the energy performance of its services and buildings.

The Recommendation also provides guidelines and examples of measures to mobilize private financing. It calls for developing a regulatory framework that guarantees non-discrimination in energy-efficiency loans, creating aid schemes and risk-mitigation mechanisms to promote green financial products, and integrating tax-based or on-bill financing systems into national frameworks. Developing these mechanisms faces significant challenges, including solvency and liquidity constraints among vulnerable groups and the lack of awareness among owners and tenants regarding the benefits of energy efficiency, not only in terms of savings but also in terms of comfort, habitability and increased market value of housing.

This report lays out the main proposals for action for each type of financial mechanism or product, aimed at overcoming regulatory barriers, the scarcity of energy data on buildings and dwellings, and the complexity of financing structures, in order to facilitate their implementation at the national level. The proposals also seek to prevent the financial exclusion of any type of housing or building, especially those in situations of vulnerability or energy poverty that face solvency and liquidity challenges.

In addition, the report addresses measures to mitigate the lack of demand among owners and homeowners' associations due to insufficient awareness of the benefits of renovation, the limited availability of energy data and information on existing financing mechanisms, and the limited proximity of financiers and public administrations to their needs and challenges.

In this regard, the report recommends a broad and diverse set of measures to promote housing stock renovation and energy efficiency.

These include introducing regulatory and fiscal changes together with incentives and public guarantees, improving grant processing and disbursement, and the creation of a comprehensive and coordinated system of services and specialized advisory support on renovation.

It also proposes training initiatives to increase the availability of skilled labor in the sector and to strengthen the capacities of public administration, building renovation facilitators and property managers.

The report also calls for the development of blended financing mechanisms within public–private partnership frameworks, long-term financing schemes linked to the property rather than the owner—funded through taxes or urban ecological charges—and new non-bank financial instruments involving energy service companies and utilities through on-bill payment models.

Finally, it proposes promoting systems that monetize energy savings and the resulting increase in property value from efficiency improvements, as well as establishing public-private structures to undertake large-scale urban regeneration projects that include deep renovations and create investment vehicles dedicated to social rental housing.

Introduction 02

This report presents the main conclusions of the working group "Priority measures to generate financing that meets the needs of the building stock in Spain", created by alinnea between May and October 2025. Based on participants' contributions, a series of proposals and recommendations have been defined to address the financing challenges faced by building owners, a priority issue for meeting the decarbonization targets for the building stock.

We would like to express our special thanks to the members of this working group (see Annex 1) for sharing their ideas, reflections and time with the group, as well as to the experts who contributed their valuable knowledge through presentations.

2.1. Objectives of the working group

The working group's discussions are reflected in the section on key recommendations to increase the scalability and reach of financing. These recommendations aim to address the financing challenges faced by building owners, a priority for meeting the decarbonization targets for the building stock set out in the PNIEC and in the new Energy Performance of Buildings Directive (EPBD).

2.2. Methodology

The methodology used to prepare this report consisted of a series of working sessions (following the Chatham House Rules format), complemented by bilateral interviews with relevant sector stakeholders to analyze the main challenges and opportunities related to financing the renovation of buildings in Spain.

This work involved the participation of a diverse group of strategic actors from the public and private sectors, financial institutions, multilateral organizations, academia and the social sector, who took part in four working sessions. In addition, a deep-dive information session was organized on some of the existing financing instruments for building renovation.

The first session was devoted to introducing the decarbonization of the building stock in Spain and the main challenges to advancing its financing. The second session focused on analyzing financial instruments mobilized through channels other than the traditional ones used by financial institutions. The third session deepened the analysis of the main barriers and proposals for democratizing the products and mechanisms used to finance renovation and decarbonization projects and included a review of examples of good practice in the European Union. Finally, the fourth session was devoted to jointly reviewing the content included in this final report prior to its publication.

Bilateral meetings were also held to examine specific barriers in greater depth, with the aim of strengthening and refining the final proposals for action.

During the first three sessions, presentations were delivered by the following entities and on the following topics. We express our thanks for their time and contributions:

- Antonio Ortiz, Deputy Director General for Sustainable and Digital Finance, Directorate General of the Treasury and Financial Policy, Ministry of Economy, Trade and Enterprise
- Jaime Yrazusta, Director of the Sustainable Business Unit, BBVA
- Sergio Roldán Ramírez, Housing Department, Caja Rural de Navarra
- Alberto Vilches, Partner at Bluerise and Sustainability Advisor
- Susana Martín, Head of Public Policy, Revo Prosperidad Sostenible
- Agustín Villar, Director of Regulation and Training, ANESE

The working group received technical support from Pablo Esteban Sánchez, deputy director of Spainsif, and Cristina Monge Lasierra, who facilitated dialogue during the working sessions.

Context 03

3.1. The importance of the residential building stock in achieving zero-emission targets

In Europe, 40% of energy consumption, more than half of gas consumption (mainly through heating, cooling and domestic hot water), and more than 36% of energy-related greenhouse gas emissions (BPIE, 2021) come from the building sector. It is therefore essential for this sector to advance towards decarbonization so that the EU can achieve its net-zero emissions targets by 2050.

Following the introduction of the *Technical Building Code*, approved in Spain in 2006 by Royal Decree 314/2006 in accordance with Directive 2002/91/EC (European Parliament, 2002) on the energy performance of buildings, new buildings today consume only half as much energy as those constructed in the 1980s (European Commission, 2019).

There are around 131 million buildings in Europe, 90% of which are residential (European Commission, 2022).

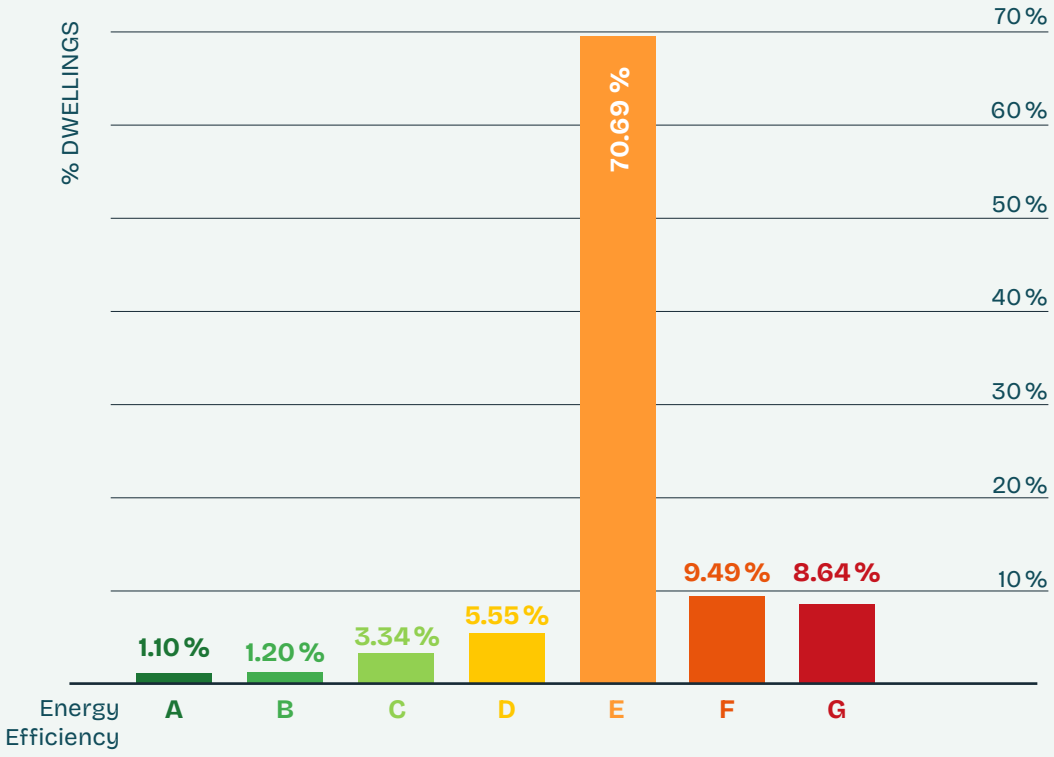


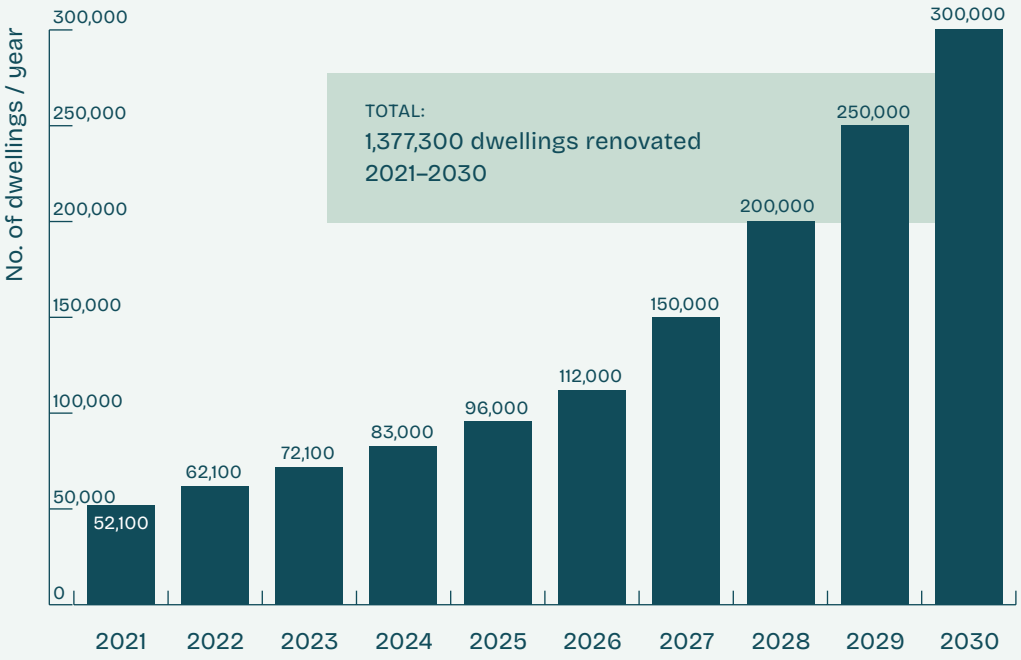
Figure 1.
Estimated energy efficiency of residential buildings in Spain.

Source:
Arias, C., Filippini, J., Merchán, I., Paramio, D., & Vergara, C. (2025). *Eficiencia energética y valor de los activos inmobiliarios residenciales en españa. [*Energy efficiency and value of residential real estate assets in Spain.] IESE Business School. https://industrymeetings.iese.edu/wp-content/uploads/INFORME_2025_Eficiencia_energetica_RE.pdf

However, the average annual energy renovation rate in Europe remains very low (around 1%) (European Commission, 2022)[1]. According to estimates from the *Plan Nacional Integrado de Energía y Clima* (PNIEC) [Integrated National Energy and Climate Plan] (MITECO, 2024)[2], 1.38 million homes in Spain must be renovated by 2030 in order to reduce the sector's energy demand and contribute to its decarbonization. Figure 2 shows the annual forecast for housing renovation for the period 2021–2030.

Figure 2.
Indicative annual forecast of energy-renovated dwellings, 2021–2030

Source: Ministry for the Ecological Transition and Demographic Challenge, 2023



Addressing the investments needed to renovate the residential building stock is not straightforward.

In multi-family residential buildings (blocks of flats), which represent 64% of the residential stock (IESE, 2024), homeowners' associations must reach agreements on the investments required to renovate common elements. This adds complexity in urban environments dominated by this type of building, given the collective nature of decision-making and the different owner profiles that may coexist within the same homeowners' association.

1 European Commission. (2022). Energy performance of buildings directive. [Website]. Retrieved from https://energy.ec.europa.eu/topics/energy-efficiency/energy-performance-buildings/energy-performance-buildings-directive_en?prefLang=es&etrans=es

2 MITECO, 2024. Plan Nacional Integrado de Energía y Clima. Actualización 2023-2030. [Integrated National Energy and Climate Plan. 2023–2030 Update]. Retrieved from https://www.miteco.gob.es/content/dam/miteco/es/energia/files-1/pniec-2023-2030/PNIEC_2024_240924.pdf

We must also note that housing is a basic right and a fundamental necessity, and that many people may lack the financial capacity to make the investment or take on the debt required for the building's renovation.

Consequently, access to financing for renovation aligned with the zero-emission targets for the residential building stock presents challenges that require detailed analysis and a combination of innovative public and private financing mechanisms that can be adapted to the needs and diversity of owner profiles that characterise the housing sector in Spain today.

Equally important is a regulatory and fiscal framework that actively supports and incentivizes residential renovation.

3.2. Regulatory framework

3.2.1. THE REGULATORY FRAMEWORK IN EUROPE

In May 2024, the European Commission revised the main EU law governing the sustainability of buildings, the European Directive on the energy performance of buildings (EPBD) (Directive 2024/1275). This Directive is the main policy instrument for addressing the challenge of achieving zero emissions from the building stock, both in existing buildings and in new construction.

Beyond reinforcing the "Energy Efficiency First" principle of the EU Energy Efficiency Directive, the EPBD incorporates a more ambitious vision by integrating the objective of decarbonizing the building stock.

Under the Directive, each Member State will adopt its own national trajectory in 2026, the *Planes nacionales de renovación de edificios* (PNRE) [National Building Renovation Plans], which will replace the *Estrategias de renovación a largo plazo* (ERESSE) [Long-term Renovation Strategies (LTRS)], setting interim targets to reduce the average primary energy consumption of residential buildings by 16% by 2030 and by 20–22% by 2035

In addition, all new residential and non-residential buildings must generate zero on-site emissions from fossil fuels: from 1 January 2028 for publicly owned buildings, and from 1 January 2030 for all other new buildings, with the possibility of specific exemptions.

The Directive sets ambitious targets while recognizing national specificities, leaving it to Member States to decide which specific measures they will adopt and which buildings these measures will apply to.

An 11.7% reduction in energy consumption by 2030: this is the target that Member States must achieve compared to the 2020 baseline scenario.

This Directive is aligned with the European Energy Efficiency Directive (EED)[3] which establishes minimum requirements and standards to apply energy efficiency as a priority across all sectors. It also requires Member States to reduce energy consumption by raising their level of commitment to energy efficiency by at least 11.7% by 2030, compared to the EU's 2020 baseline scenario.

The Directive also requires the creation of one-stop shops for advice and technical support on building renovation and provides recommendations on public and private financing to make renovation more affordable and feasible (European Commission, 2025)[4].

3 Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955 (recast). https://www.boe.es/doue/2023/231/L00001-00111.pdf

4 European Commission Communication C(2025) 4132 final. *Financial incentives, skills and market barriers (Article 17) and one-stop shops (Article 18).* https://energy.ec.europa.eu/document/download/dbd4ba41-e69f-44cf-aa6c-4d742b5afada_en?filename=EPBD%20guidance%20%28package%29.pdf

Financing measures must incentivize and support renovation, with a particular focus on vulnerable consumers and the least efficient buildings, where a higher share of households experiencing energy poverty is concentrated.

Financing measures must incentivize and support renovation, with a particular focus on vulnerable consumers and the least efficient buildings, where a higher share of households experiencing energy poverty is concentrated. The aim is to mobilize additional financing and to steer construction-sector value chains towards zero-emission objectives by addressing the full building life cycle, covering not only energy efficiency and GHG reduction targets but also the circular economy, water management, climate resilience and adaptation, and impacts on biodiversity.

3.2.2. THE REGULATORY FRAMEWORK IN SPAIN

The *Plan Nacional Integrado de Energía y Clima* (PNIEC) [Integrated National Energy and Climate Plan], overseen by the Ministry for Ecological Transition and Demographic Challenge (MITECO), was most recently updated for the period 2023–2030 (MITECO, 2024). Regarding the implementation of this plan, it is important to note that renovation support in Spain has been funded under Component 2, the *Plan de rehabilitación de vivienda y regeneración urbana* [Housing Renovation and Urban Regeneration Plan], of the Next Generation EU funds, as well as from the programs managed in recent years by IDAE. These include the now-closed aid programs for energy renovation actions in existing buildings (PREE), and the *Programa de rehabilitación energética para edificios existentes en municipios de reto demográfico* (PREE 5000) [Energy Renovation Program for Existing Buildings in Municipalities with Demographic Challenges].

In parallel, specific actions to improve buildings' energy performance have been framed within the *Estrategia a largo plazo para la rehabilitación energética en el sector de la edificación en España* (ERESEE) [Long-Term Strategy for Energy Renovation in the Building Sector in Spain], which is overseen by the Ministry of Housing and Urban Agenda (MIVAU) and is supported by various legislative instruments.

New housing construction is carried out in accordance with the *Código Técnico de la Edificación* (CTE) [Technical Building Code], which sets energy efficiency requirements for buildings and requires an energy performance certificate when buildings are constructed or undergo major renovations.

EU Member States must transpose the EPBD by 29 May 2026 and determine the measures they will adopt and their scope, including the objectives, the types of buildings covered, and the most effective mechanisms for aid, technical assistance and financing that will apply once the MRR funds close in 2026.

3.3. How the lack of decarbonization of the building stock translates into financial risks and impacts

Like other assets, the building stock is affected by climate risks, including both physical and transition risks.

Both the Basel Committee[5] and the European Banking Authority (EBA)[6] have analyzed the transmission channels through which climate risks translate into financial risks and affect the banking sector

The main climate-related risk factors are physical risks and transition risks.

Physical risks arise from the impacts of climate change and environmental degradation, which manifest in both acute events (extreme weather events such as heat waves, wildfires or floods) and chronic events resulting from the progressive increase in temperature, changes in climate patterns or the gradual loss of ecosystem services that lead to phenomena such as altered precipitation patterns or sea level rise.

Transition risks generally refer to uncertainty regarding the timing and pace of the adjustment process towards an environmentally sustainable economy that mitigates climate change and prevents the continued materialization of the physical risks described above.

5 Bassel Committee on Banking Supervision, 2021. Climate-related risk drivers and their transmission channels. https://www.bis.org/bcbs/publ/d517.htm

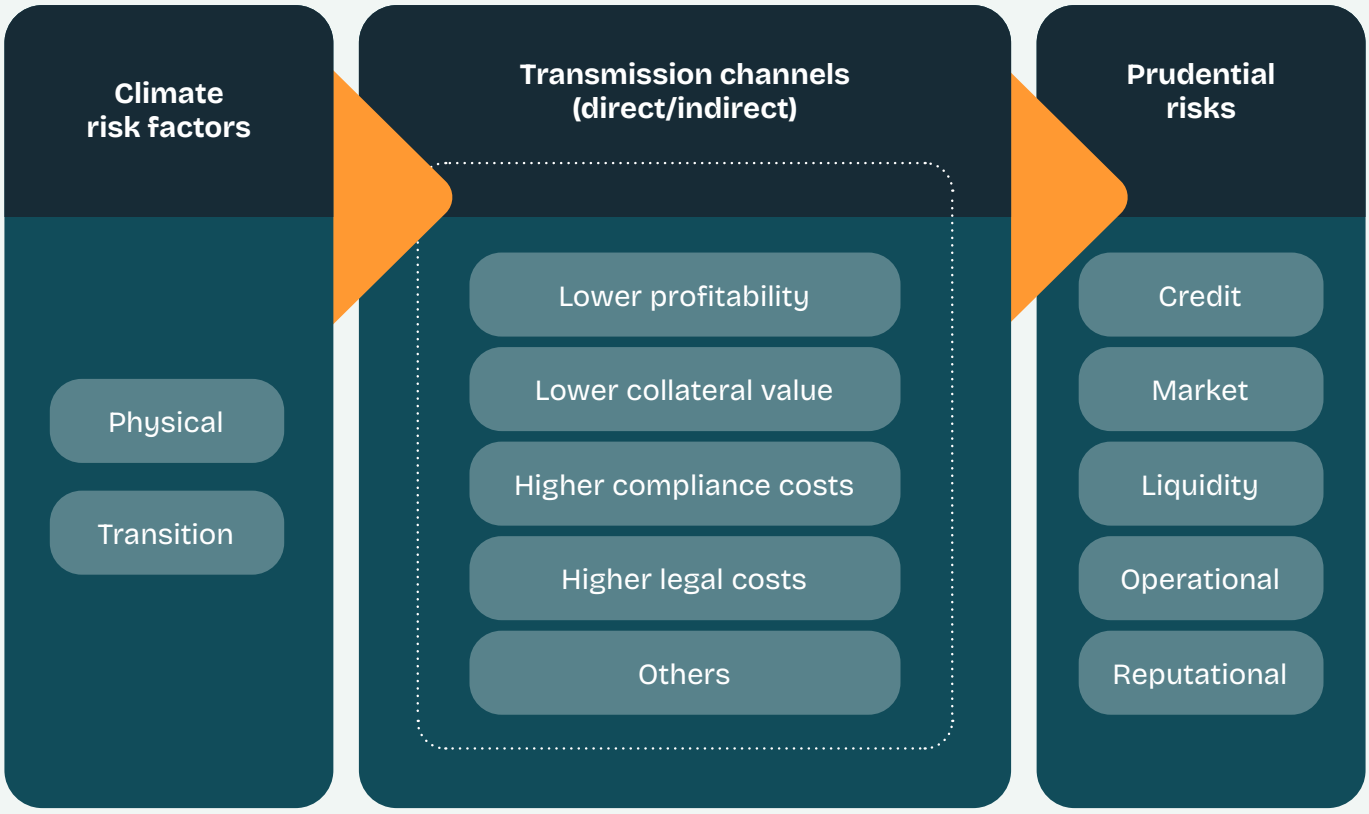
6 EBA, 2021. Report on Management and supervision of ESG risks for credit institutions and investment firms. https://www.eba.europa.eu/sites/default/files/document_library/Publications/Reports/2021/1015656/EBA%20Report%20on%20ESG%20risks%20management%20and%20supervision.pdf

In the building and construction sector, changes such as revisions to the *Código Técnico de la Edificación* (CTE) [Technical Building Code], the introduction of minimum energy performance obligations for buildings or new requirements related to energy performance certificates would particularly affect the least efficient buildings and homes. These changes may influence housing prices or the solvency and liquidity of owners who must make investments to comply with energy performance requirements.

These risks can therefore affect institutions' financial performance when they materialize through financial risk categories, primarily credit and market risks but also operational, liquidity, funding and reputational risks.

Figure 3.
How climate risk impacts the banking sector

Source: Lozano Setién, C., Merino Rueda, S., & Palomeque Pozas, E. (2024). El riesgo de cambio climático y la normativa prudencial bancaria: iniciativas y desafíos. *[Climate change risk and prudential banking regulation: initiatives and challenges]* ICE, Revista De Economía, (936). https://doi.org/10.32796/ice.2024.936.7832



3.4. Role of financial industry regulators and supervisors

The banking prudential framework is structured around three pillars:

- **Pilar 1** focuses on minimum capital requirements and buffers, and the liquidity and leverage frameworks;
- **Pilar 2** centers on the Supervisory Review and Evaluation Process (SREP) of the risks faced by banks and the Internal Capital Adequacy Assessment Process (ICAAP);
- **Pilar 3** concerns the disclosure of prudential information.

The prudential framework normally begins with the application of Pillar 2 and Pillar 1, that is, with risk assessment and the establishment of minimum capital requirements and is followed by Pillar 3 on prudential risk disclosure.

In the case of climate risks, the sequence has been reversed. This is largely due to the limited availability of information on these risks, their long-term and forward-looking nature, and the methodological challenges of incorporating them into traditional financial risk and capital adequacy models, which typically operate over much shorter time horizons. As a result, the regulator has deemed it appropriate to begin by establishing Pillar 3 disclosure requirements before considering any potential Pillar 1 obligations.

Decarbonization of the building stock and sustainable finance in Europe

04

Decarbonization of the building stock and sustainable finance in Europe 04

4.1. Impact of the Taxonomy Regulation on sustainable financing eligibility

The Taxonomy Regulation has established reporting obligations that have been passed on to the financial sector through Regulation (EU) 2019/2088 on Sustainable Finance Disclosure (SFDR)[7] and through Pillar 3 of prudential information disclosure.

In addition, eligibility criteria applicable to sustainable financing lines have been defined based on the technical criteria established in Commission Delegated Regulation (EU) 2021/2139[8], which supplements the Taxonomy Regulation, and on the criteria set out in Regulation (EU) 2021/241[9], which establishes the Recovery and Resilience Facility.

Household loans secured by residential property may be considered environmentally sustainable only when the financed asset has an A-class Energy Performance Certificate (EPC) or is within the top 15% of the national or regional building stock with the lowest primary energy demand.
For loans granted to households for building renovation or rehabilitation, Delegated Regulation (EU) 2021/2139 establishes that, to meet the technical screening criteria, the renovated building must comply with the minimum energy performance requirements set out in the applicable regulations or achieve a reduction in primary energy demand of at least 30%.

In the specific case of replacing conventional energy with biomass in thermal installations, the intervention must deliver at least an 80% reduction in greenhouse gas emissions in order to obtain a "climate contribution calculation coefficient" of 100%, as set out in Annex VI to Regulation (EU) 2021/241.

7 Regulation (EU) 2019/2088 on Sustainable Finance Disclosure. https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:32019R2088

8 Commission Delegated Regulation (EU) 2021/2139 of 4 June 2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation and for determining whether that economic activity causes no significant harm to any of the other environmental objectives. https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX:32021R2139

9 Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Recovery and Resilience Facility. https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:32021R0241

For renovation works, all construction and demolition waste generated must be managed in accordance with EU waste legislation and the full checklist of the EU Construction and Demolition Waste Management Protocol. Specifically, this includes establishing sorting systems and the performance of pre-demolition audits.

Regarding the installation, maintenance and repair of energy-efficient equipment, the equipment must meet the minimum requirements established for the various components and systems under national measures transposing the Energy Performance of Buildings Directive. Where relevant, the equipment must also fall within the two highest energy-efficiency classes, in accordance with Regulation (EU) 2017/1369 and its delegated acts on energy labelling.

In addition to meeting these energy-efficiency requirements in order to contribute to climate-change mitigation and emissions reduction, activities must comply with the Taxonomy's Do No Significant Harm (DNSH) principle, which requires that they do not cause significant harm to any of the environmental objectives. These objectives include

* climate change mitigation and adaptation;
* sustainable use and protection of water and marine resources;
* transition to a circular economy;
* pollution prevention and control;
* and the protection and restoration of biodiversity and ecosystems.

4.2. Climate risk supervision in building assets

Implementing Regulation (EU) 2022/2453[10], which governs the disclosure of environmental, social and governance risks and is based on the EBA's Implementing Technical Standards (ITS), sets out the prudential transparency requirements for ESG risks.

The quantitative indicators required by the Regulation are reported through the following templates:

- Transition risk templates (1 to 4): these must include, among other elements
  - **(i)** a breakdown of the portfolio of loans collateralized by residential and commercial buildings, as well as foreclosed assets, according to their energy efficiency levels—measured by the c*ertificado de eficiencia energética* (CEE) [energy performance certificate, EPC]—and the estimated electricity consumption (kWh/m²) of each property, distinguishing whether it is located within or outside the EU; and
  - **(ii)** alignment metrics that establish future decarbonization targets for the most relevant sectors in line with the Paris Agreement.
- Physical risk template (5): this covers the exposure of the portfolio of non-financial corporations, collateral and foreclosed assets—residential and commercial—to acute and chronic physical risks.
- Mitigation measures templates (6 to 10): these templates include indicators aligned with the climate change mitigation objective defined in the Taxonomy Regulation (EU) 2020/852[11]. Template 7 (Mitigation measures: Assets for calculating the Green Asset Ratio [GAR]) contains information on loans granted to households, either secured by residential buildings or intended for building renovation. Template 8 must report the GAR, i.e., the share of these assets that can be considered environmentally sustainable because they meet the criteria of the EU Taxonomy Regulation for contributing to climate change mitigation or adaptation objectives.

The European Central Bank (ECB) has also made progress under Pillar 2 regarding stress testing frameworks and the development of the Internal Capital Adequacy Assessment Process (ICAAP), gradually incorporating climate and environmental risks into its supervisory review process over the past several years (Lozano et al., 2024).

10 Implementing Regulation (EU)2022/2453. https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:32022R2453

11 Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment and amending Regulation (EU) 2019/2088. https://eur-lex.europa.eu/legal-content/es/ALL/?uri=CELEX%3A32020R0852

In Spain, the *Autoridad Macroprudencial del Sistema Financiero Español* (AMCESFI), which includes the Bank of Spain, published the first *Informe Bienal de los riesgos climáticos para el sistema financiero español* [Biennial Report on Climate Risks for the Spanish Financial System] in 2023 and the second in 2025[12].

In its **Report on the role of environmental and social risks in the prudential framework** (2023), the EBA assessed how the current prudential framework captures ESG risks and recommended specific improvements to accelerate their integration into Pillar 1. In June 2024, the ECB explicitly included the treatment of these risks and mandated the EBA to develop technical specifications. That same month, Regulation (EU) 2024/1623[13] (known as the Capital Requirements Regulation 3) was published, with application from 1 January 2025, alongside Directive (EU) 2024/1619[14] known as the Capital Requirements Directive 6, CRD VI), which must be transposed by Member States within 18 months and will apply from 11 January 2026.

12 AMCESFI, 2025. *Informe Bienal de los riesgos climáticos para el sistema financiero español* [Biennial Report on Climate Risks for the Spanish Financial System] https://www.amcesfi.es/f/webwam/RCL/Publicaciones/archivos/AMCESFI_Informe_Cambio_Climatico_2025.pdf

13 Regulation (EU) 2024/1623 of the European Parliament and of the Council of 31 May 2024 amending Regulation (EU) No 575/2013 as regards requirements for credit risk, credit valuation adjustment risk, operational risk, market risk and the risk-weighted asset floor. https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=OJ:L_202401623

14 Directive (EU) 2024/1619 of the European Parliament and of the Council of 31 May 2024 amending Directive 2013/36/EU as regards supervisory powers, sanctions, third-country branches and environmental, social and governance risks. https://eur-lex.europa.eu/legal-content/ES/ALL/?uri=CELEX:32024L1619

With regard to ESG risks, the main changes introduced are the following:

- Establishment of harmonized and unified definitions for the different types of ESG risks
- Mandatory disclosure by all institutions of their exposure to ESG risks and to activities subject to environmental or social factors
- Obligation to categorize assets and activities subject to environmental or social factors in line with the 2050 climate neutrality target and other EU sustainability objectives, using the technical screening criteria set out in Regulation (EU) 2020/852 to identify Taxonomy-aligned assets and activities
- Requirement for institutions to consider short-, medium- and long-term ESG risks in their internal capital assessment.

The EBA must also assess whether adjustments to the prudential treatment of exposures related to environmental and social risks are necessary. Once the final report is received, the EU will draft and adopt a new legislative proposal before 31 December 2026. However, this work remains challenging due to data gaps and methodological difficulties in integrating climate risks into financial risk analysis models.

4.3 Transparency and sustainability reporting in the financial and building-assets sectors

In addition to the Pillar 3 disclosure requirements described in the previous section, financial institutions and financial-market participants, such as asset managers and investment funds, must report information on sustainability.

Financial institutions are required to analyze sustainability performance and Taxonomy alignment of their exposures, calculate their carbon footprint, and explain how they intend to meet their asset-decarbonization objectives.

Reporting obligations for the financial sector are set out in Regulation (EU) 2019/2088[15] on Sustainable Finance Disclosure (SFDR). Institutions must disclose how environmental, social and governance (ESG) factors are integrated into their financial products, classifying those products according to their level of sustainability. They must also report the percentage of alignment with the EU Taxonomy at both entity and product levels. As a result, financial institutions are required to analyze sustainability performance and Taxonomy alignment of their exposures, calculate their carbon footprint, and explain how they intend to meet their asset-decarbonization objectives.

At the same time, Directive (EU) 2022/2464[16] (the Corporate Sustainability Reporting Directive, CSRD) establishes sustainability-reporting obligations for large companies, listed SMEs and public-interest entities. These obligations have been implemented through the European Sustainability Reporting Standards (ESRS).

Under these standards, large financial institutions must report metrics that include, among other environmental indicators, information on energy consumption, greenhouse gas emissions, the potential financial effects of material physical and transition risks, and the achieved and expected reductions in GHG emissions.

15 Regulation (EU) 2019/2088 on sustainability-related disclosures in the financial services sector. https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:32019R2088

16 Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU as regards corporate sustainability reporting. https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:32022L2464

4.4. Public funding for the decarbonization of buildings

Within the framework of public sustainable-financing programs and mechanisms backed by EU funds, several grant schemes and dedicated funding lines are focused on the renovation and refurbishment of buildings and housing.

The housing-renovation and urban-regeneration aid programs financed through NextGenerationEU funds via the Recovery and Resilience Facility (MRR) are particularly salient.

The housing-renovation and urban-regeneration aid programs financed through NextGenerationEU funds via the Recovery and Resilience Facility (MRR) are particularly salient.

In Spain, rehabilitation programs have been supplemented with resources from the National Energy Efficiency Fund (FNEE) and the European Regional Development Fund (ERDF).

The European Investment Bank (EIB) has channeled NextGenerationEU funds through the Autonomous Community Resilience Fund, with an allocation of up to €20 billion to finance sustainable investment projects by regional governments in priority sectors such as sustainable transport, innovation and energy transition, social and affordable housing, and urban regeneration. Together with the European Commission, the EIB also manages the ELENA program (European Local Energy Assistance), which provides technical assistance to public administrations and entities for the design and structuring of programs related to energy efficiency, renewable energy and sustainable mobility.

The EIB also plays a significant role in the field of guarantees through the European Investment Fund (EIF) and acts as an anchor investor in green, sustainable and social bond issuances, as well as in impact-investment funds. In Spain, support for the renovation of buildings and housing is managed by the Institute for Energy Diversification and Saving (IDAE), which reports to the Ministry for Ecological Transition and Demographic Challenge (MITECO), by the Ministry of Housing and Urban Agenda (MIVAU), and by the Official Credit Institute (ICO).

Component 2 of Spain's PNRTR, *Implementation of the Spanish Urban Agenda: Housing Renovation and Urban Regeneration Plan*, envisages total investment of €15.367 billion, of which €10.82 billion comes from the MRR (including €700 million in tax incentives). Of this amount, €9.52 billion is managed by MIVAU, with a focus on the renovation of buildings and urban environments, at both neighborhood and building level (including public buildings) and on expanding the social housing stock.

The *2019–2024 National Strategy against Energy Poverty* also included grants for vulnerable groups to cover renovations and the replacement of equipment with more energy-efficient alternatives, and the promotion of the public social-rental housing stock. In addition, the PRTR addendum approved in October 2023 introduced a second phase of €4 billion in loan-based support for social-housing development, managed by the ICO through the "ICO MRR Social Housing Mediation Line", which will close on 1 June 2026.

The ICO also channels MRR funds through the "ICO Green MRR Mediation Line", aimed primarily at SMEs and the self-employed, though also open to individuals and households for financing energy-efficiency projects and/or electric vehicle purchases. The "ICO Companies and Entrepreneurs Line" likewise provides financing for the renovation of homes, common elements and buildings.

In parallel, AXIS—ICO Group's venture-capital manager—acts as an investor in private-equity funds focused on affordable housing, with total investment of €268 million, half of which comes from the InvestEU program.

MRR funds will conclude in June 2026, making it necessary to determine whether the existing grant schemes will continue or whether alternative support mechanisms will be introduced.

During the first phase of the PNRTR (2021–2023), most of the funding for the renovation of homes and residential buildings came through grants. IDAE also managed ERDF funds linked to the Low-Carbon Economy programs under Axes 4 (Low-Carbon Economy) and 12 (Sustainable and Integrated Urban Development), as well as the PREE and PREE 5000 programs, which are now closed. It should be recalled that MRR funds will conclude in June 2026, making it necessary to determine whether the existing grant schemes will continue or whether alternative support mechanisms will be introduced. The same applies to MIVAU aid under the Long-Term Strategy for Energy Renovation in the Building Sector in Spain (ERESEE) and to the ICO lines mentioned above, which are scheduled to close on 1 June 2026.

Spain is therefore in a transitional period, waiting for MIVAU to submit the 2026 National Building Renovation Plan (PNRE) to the European Commission. This will replace the ERESEE in line with the updated Energy Performance of Buildings Directive (EPBD). Under this Directive, each Member State must adopt its own national trajectory in 2026.

On 30 June 2025, the European Commission published a Communication providing guidance on the new or amended provisions of the recast Directive (EU) 2024/1275 on the energy performance of buildings (European Commission, 2025)[17]. Annex 2 specifies that, in accordance with Article 17 of the EPBD, the EU must deploy the necessary public funding sources to achieve a zero-emission building stock by 2050 through the MRR, the Social Climate Fund, the Cohesion Fund, InvestEU and the auctioning of emissions-trading revenues. It also states that Member States must ensure a significant share of national funding—through their own national budgets—within the framework of their National Building Renovation Plans.

Communication also expands on Article 18 of the EPBD, which calls on Member States to establish technical-assistance mechanisms through one-stop shops to support citizens throughout the renovation process.

17 Communication from the European Commission providing guidance on the new or substantially amended provisions of the recast Directive (EU) 2024/1275 on the energy performance of buildings. Annex 2 on financial incentives, capacities and market barriers (Article 17) and one-stop shops (Article 18). https://energy.ec.europa.eu/publications/communication-approving-content-notice-providing-guidance-recast-epbd-guidance-recast-epbd_en

Decarbonization of the building stock in Spain and its financial impact

05

Decarbonization of the building stock in Spain and its financial impact 05

5.1. Main actors in the sector

Understanding the challenges involved in financing the decarbonization of the building stock requires considering the specific circumstances and differing perspectives of homeowners; homeowners' associations; property managers; private and public financial institutions; property appraisal companies; investors; public administrations and autonomous communities; energy utilities; energy service companies; installers; and construction and renovation firms.

5.2. Energy efficiency and its effect on housing prices

In 2025, the Bank of Spain[18] published the results of a study analyzing the influence of energy efficiency on housing prices in Spain, using a sample of more than one million homes sold between 2015 and 2022.

86.5% from an initial sample of 4,236,933 residential properties had a rating of E or lower.

From an initial sample of 4,236,933 residential properties that had an Energy Performance Certificate (EPC, CEE in Spanish) at the end of 2022, 86.5% had a rating of E or lower. Category E alone accounted for 56.7% of the total, highlighting the substantial potential for improvement through energy renovation.

The study also reveals considerable regional heterogeneity in efficiency levels, likely associated with climatic differences. The Canary Islands stand out as the autonomous community with the lowest average energy rating.

On average, a dwelling with an A rating consumes roughly 90% less energy than one with a G rating (25.9 kWh/m² per year compared with 281.8 kWh/m² per year). This lower energy consumption translates into significant financial savings for households. In 2022, savings for A-rated properties amounted to €86.5/m² compared with G-rated dwellings, €72.8/m² compared with F-rated, and €47.7/m² compared with E-rated. This represents a 35.5% increase in savings per square meter compared with 2015, driven by the rise in energy prices in 2021 for the same efficiency levels.

18 Banco de España. "¿Influye la eficiencia energética en el precio de la vivienda en España?" [Does energy efficiency influence house prices in Spain?], Occasional Papers No 2508, Pana Alves and Olivier Hubert, 2025. https://www.bde.es/f/webbe/SES/Secciones/Publicaciones/PublicacionesSeriadas/DocumentosOcasionales/25/Fich/do2508.pdf

The evolution of electricity prices underscores the importance of energy efficiency as a mitigating factor in contexts of high costs and supply constraints. Energy derived from fossil fuels is expected to become more expensive with the launch of ETS2 (the second EU Emissions Trading System) in 2027. Some estimates suggest that this increase could reach 50%. Buildings that rely on natural gas for heating and domestic hot water will be among the most affected.

The Bank of Spain's empirical analysis quantifies the effect of energy efficiency on property prices. Specifically, the average price difference between a highly efficient dwelling (A or B) and a very low-efficiency one (F or G) within the same census section and quarter is 9.7% for the 2015–2022 period. The results also show that this difference has widened over time: from 5.8% in 2018 to 11.5% in 2021 and 18.3% in 2022, coinciding with rising electricity prices and other contributing factors. The premium is also higher in municipalities with greater heating needs.

In conclusion, it is essential that asset prices, including housing, reflect environmental risks. This encourages investment decisions that strengthen the climate resilience of the real estate market and support long-term sustainability objectives.

5.3. Bank exposure by the energy efficiency of buildings

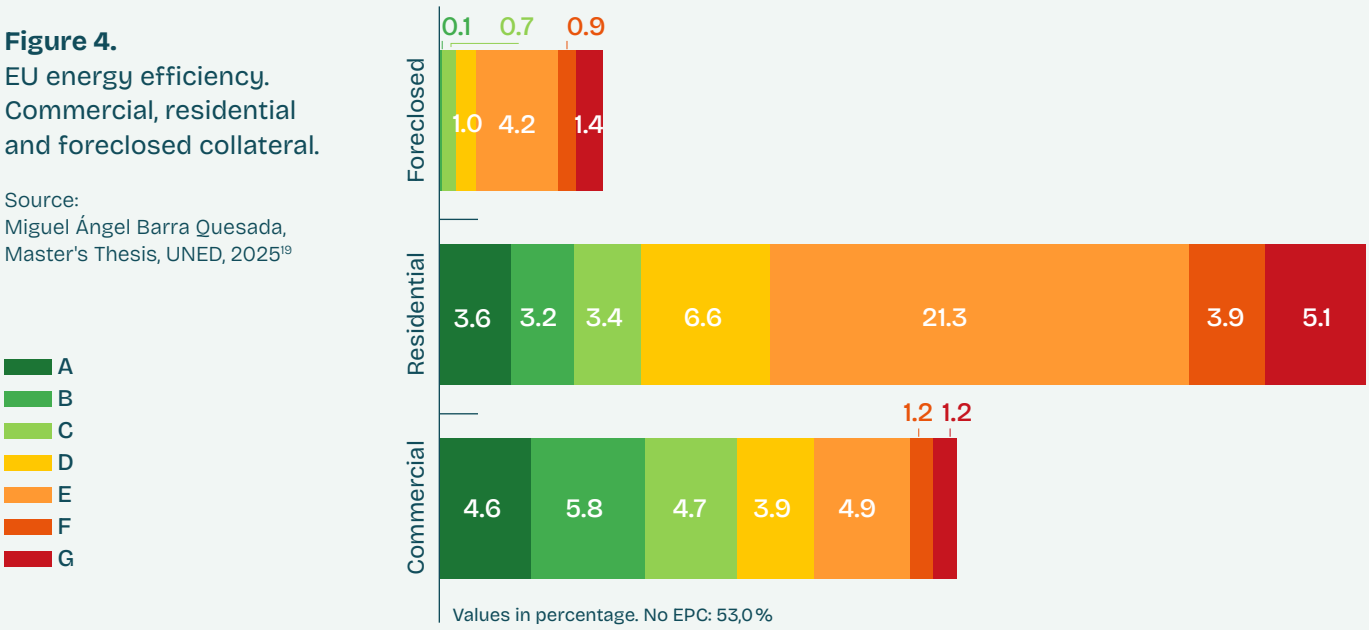
The transition risk of loan portfolios collateralized by commercial and residential buildings, as well as foreclosed assets of the same type, is reported according to each property's Energy Performance Certificate (EPC) and its estimated electricity consumption (kWh/m²), distinguishing in both cases between assets located inside or outside the EU.

The following chart presents the weighted average of collateral and foreclosed asset portfolios, broken down by the EPC of each property, based on a sample of the main Spanish financial institutions. The information is drawn from templates published in 2025 in accordance with the disclosure requirements under Pillar 3 of the prudential regulatory framework.

Information on transition risk for residential and commercial collateral portfolios, as well as foreclosed assets, measured through their EPC, shows that institutions lack this information for a considerable share of their properties: 91.8% of foreclosed assets, 73.6% of commercial collateral and 53.0% of residential collateral. In the latter case, which represents the largest portfolio, only 6.8% of assets have an energy rating of efficient or highly efficient. In this same category, 21.3% hold an E certificate (low efficiency) and only 3.6% obtain an A rating (very efficient).

Figure 4.
EU energy efficiency. Commercial, residential and foreclosed collateral.

Source:
Miguel Ángel Barra Quesada, Master's Thesis, UNED, 2025[19]



19 Barra Quesada, M. A. (2025). "Requerimientos prudenciales de transparencia relativos a riesgos ESG para las entidades de crédito" [Prudential transparency requirements relating to ESG risks for credit institutions]. Master's thesis, UNED. Supervisor: Pablo Esteban Sánchez.

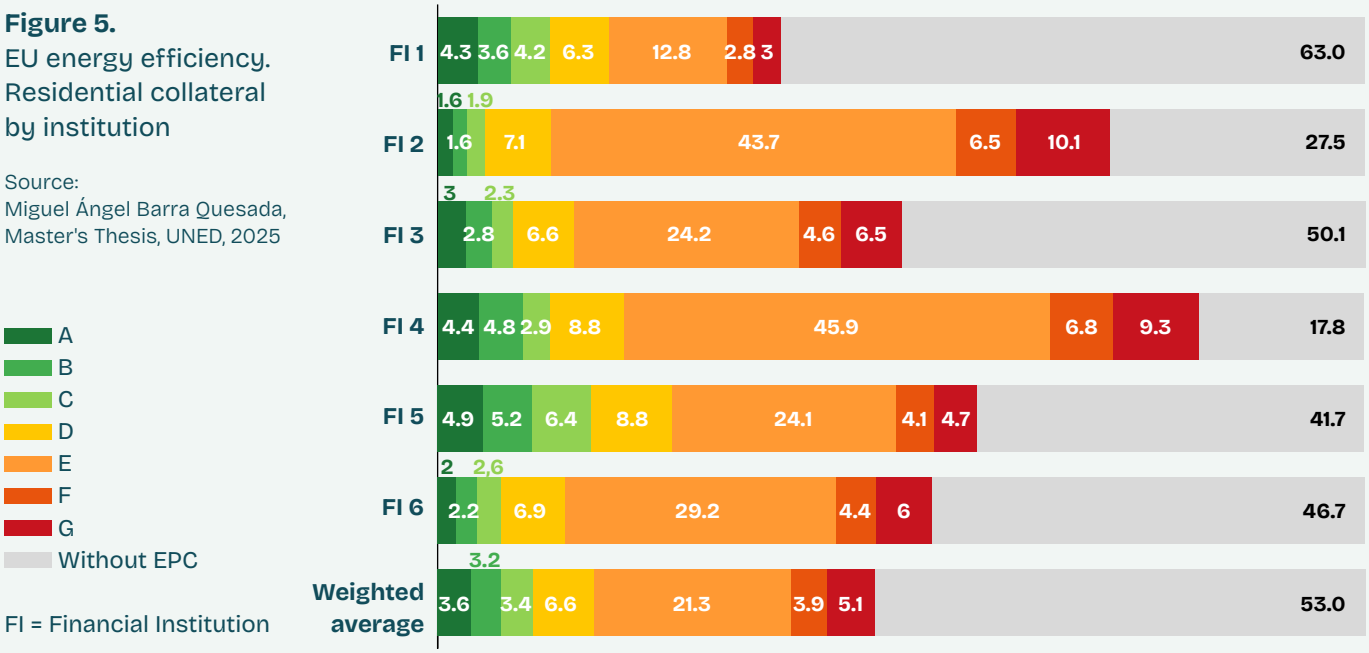
When looking at the energy efficiency indicator measured in kWh/m², the picture changes, as financial institutions have made substantial efforts to estimate the energy consumption of a significant proportion of their assets. This effort has been particularly relevant in the case of residential properties. A study by the Bank of Spain using 2022 data shows that the share of guarantees for which no information is available (actual or estimated) amounts to just 15%. A higher concentration of the portfolio is observed in the segments with better energy efficiency (Cuevas et al., 2023)[20].

For residential collateral, Figure 5, based on templates published in 2025 under the Pillar 3 prudential disclosure framework, shows increased efforts by institutions to obtain energy certificates for their properties. Some banks stand out, with 82.2% of their residential assets holding an EPC, although 45.9% of those have an E certificate (low efficiency). By contrast, other institutions have certificates for fewer than 40% of the assets in their portfolio.

Figure 5 also shows significant dispersion in the data across institutions. According to prudential relevance reports, some banks have 63% of their residential collateral in the EU without an EPC, while in others this percentage is below 30%, and in some cases even below 20%.

Figure 5.
EU energy efficiency. Residential collateral by institution

Source:
Miguel Ángel Barra Quesada, Master's Thesis, UNED, 2025



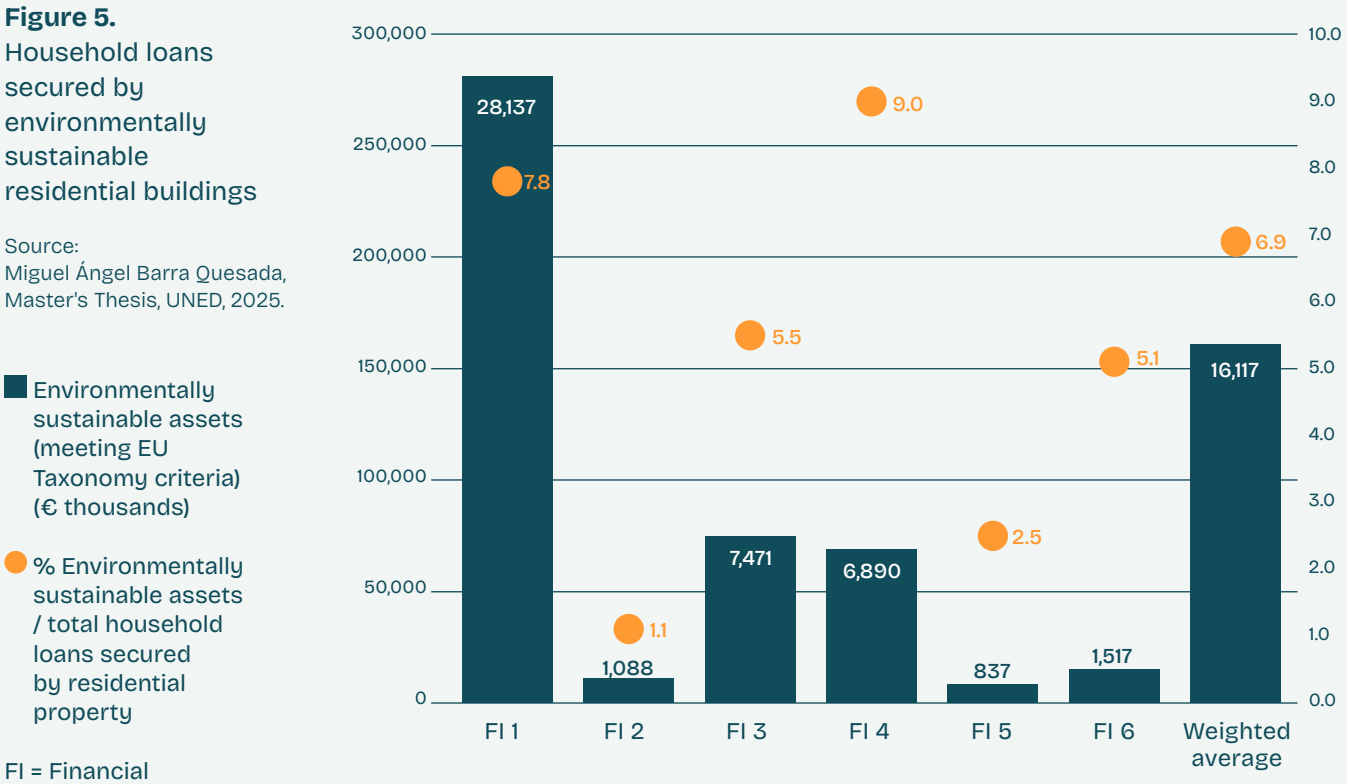
20 Cuevas, H., Palomeque, E., and Santa-Cruz, B. (2023). *"Publicación de los riesgos ESG bajo el Pilar 3: primera información de las entidades bancarias españolas y otras europeas"* [Disclosure of ESG risks under Pillar 3: Initial information from Spanish and European banks]. Financial Stability Review, 45. https://doi.org/10.53479/34857

In the case of residential buildings, this lack of information prevents institutions from reporting a higher percentage of mortgage exposures to households as aligned with the criteria of the EU Taxonomy Regulation. In loans granted to households for building renovation, the problem of unavailable information on the EPC of renovated dwellings is compounded by the very low weight of these operations on bank balance sheets. This situation is expected to change in the coming years by adopting policies and strategies to increase financing for building renovation aimed at improving energy efficiency and making properties more resilient to climate change (Miguel Ángel Barra, 2025).[21]

Regarding taxonomy-aligned exposure, Figure 6 shows the volume of assets considered environmentally sustainable, based on templates published in 2025 under the Pillar 3 disclosure requirements, as well as their share of the total portfolio of household loans secured by residential buildings.

Figure 5.
Household loans secured by environmentally sustainable residential buildings

Source:
Miguel Ángel Barra Quesada, Master's Thesis, UNED, 2025.



FI = Financial Institution

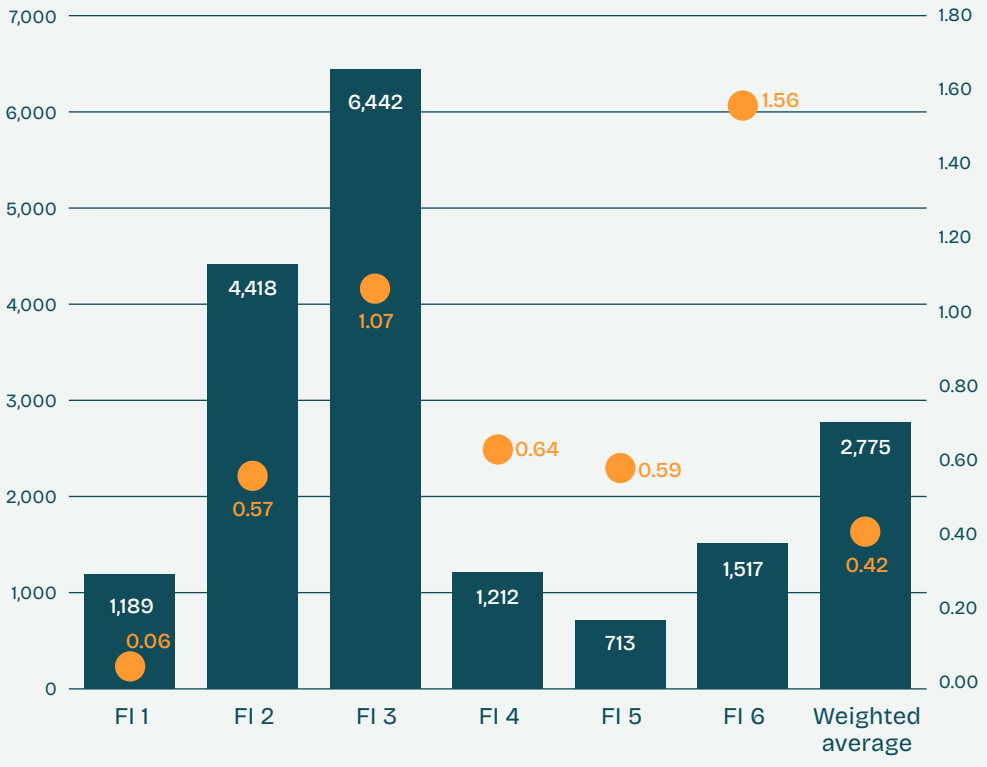
21 Miguel Ángel Barra Quesada, 2025. "Requerimientos prudenciales de transparencia relativos a riesgos ESG para las entidades de crédito. Análisis de la información con relevancia prudencial relativa a riesgos ESG divulgada por las entidades de crédito españolas cotizadas" [Prudential transparency requirements relating to ESG risks for credit institutions. Analysis of prudential information relating to ESG risks disclosed by listed Spanish credit institutions]. Master's thesis, UNED. Supervisor: Pablo Esteban Sánchez

For **loans granted to households for the renovation or refurbishment of buildings**, all institutions reported that none of the transactions or assets granted for this purpose meet the criteria of the Taxonomy Regulation to be considered environmentally sustainable. Delegated Regulation (EU) 2021/2139 establishes as a technical criterion that the energy efficiency of the renovated building must meet the minimum energy efficiency requirements set out in the relevant regulations or achieve a reduction in primary energy demand of at least 30%. Consequently, information on the EPC of the renovated building is essential. Without it, institutions cannot classify these assets as environmentally sustainable.

On a weighted-average basis, this portfolio represents only 0.42% of institutions' total assets, and only two institutions exceed 1%.

Figure 6.
Household loans for building renovation vs. total assets

Source:
Miguel Ángel Barra Quesada, Master's Thesis, UNED, 2025.



Household loans for building renovation (€ thousands)

% of the institution's total assets

FI = Financial Institution

Financing for building renovation: challenges and opportunities

06

Financing for building renovation: challenges and opportunities 06

In its Recommendation of 12 December 2023[22] on the transposition of Article 30 of Directive (EU) 2023/1791 on energy efficiency (recast of the EED), concerning National Energy Efficiency Funds and financial and technical support, the European Commission sets out the private financing mechanisms and products that it considers can help scale up the financing required to achieve the energy efficiency objectives for buildings. It also recommends that Member States establish the necessary measures to promote these private financing mechanisms and supplement them with public aid and public financing where necessary.

Annex 2 of the European Commission Communication (European Commission, 2025)[23] analyses financial incentives, market capacities and market barriers (Article 17 of the EPBD) and presents a series of measures and recommendations for EU Member States to take into account when establishing the appropriate financing mechanisms and guarantees needed for the decarbonization of buildings. It also highlights the need for Member States to promote **one-stop shops** (Article 18 of the EPBD) to assist citizens throughout the renovation process.

The **alinnea** Working Group has analyzed the private financing mechanisms that should be prioritized in the Spanish context. For each mechanism, it identifies the main challenges and formulates proposals that help democratize access to renovation financing for all households and residential buildings in Spain.

22 European Commission Recommendation C/2023/1553, 2023 of 12 December 2023 on the transposition of Article 30 on National Energy Efficiency Funds and financial and technical support, of Directive (EU) 2023/1791 on energy efficiency (recast EED). https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=OJ:C_202301553

23 European Commission Communication C(2025) 4132 final providing guidance on the new or substantially amended provisions of the recast Directive (EU) 2024/1275 on the energy performance of buildings. Annex 2 on financial incentives, capacities and market barriers (Article 17) and one-stop shops (Article 18). https://energy.ec.europa.eu/document/download/dbd4ba41-e69f-44cf-aa6c-4d742b5afada_en?filename=EPBD%20guidance%20%28package%29.pdf

6.1. Bank financing mechanisms and instruments

GREEN MORTGAGE

Loans secured by buildings (commercial and residential) represent a very significant share of the loan portfolio to non-financial sectors on bank balance sheets.

A green mortgage is a financial product that offers preferential terms for the purchase of an energy-efficient home (EPC A or B) and, to a lesser extent, in some cases for renovations aimed at improving its EPC rating. These products may also be combined with other discounts linked to additional products, such as insurance.

Main challenges

- Minimum energy-efficiency requirements for homes have not yet been established, even though non-compliance with such requirements would restrict their rental or sale.
- There is limited information on energy consumption, emissions and overall energy characteristics of existing buildings and homes.
- Mortgages are designed for home purchases, and only in some cases for major renovations planned at the time of purchase.
- Most renovation measures aimed at improving energy efficiency are relatively low cost and are usually carried out after the home has been purchased. As such, they are generally not suitable for inclusion in a mortgage or a mortgage novation that would require increasing the original loan amount.
- There is still limited standardization across Europe in the criteria used to define green mortgages.
- The alignment criteria under the EU Taxonomy for loans secured by buildings are very demanding.
- The Capital Requirements Regulation and Directive do not provide lower capital requirements for green mortgages.
- Difficulties persist in implementing the framework established in Order ECO-805/2003, which requires including energy-efficiency data in property valuations and reflecting their impact on value.
- There is mistrust and limited awareness among homeowners due to lack of knowledge about the benefits of energy-efficiency renovations in terms of savings, comfort and potential increases in property value.
- Among vulnerable groups (due to income, age or disability), solvency and liquidity constraints persist, requiring public support or guarantees.
- Some mortgages include financing for renovations in low-efficiency homes, but they are not considered green because, even when improvements are substantial, they do not reach an EPC A or B rating.
- Interest-rate discounts linked to EPC ratings are sometimes not applied because customers reach the cap on total discounts from other contracted products.

GREEN MORTGAGES

Main proposals

- Revise green-mortgage standards so they also include homes that achieve substantial improvements in energy efficiency (for example, an improvement of two EPC levels), even if they do not reach A or B.
- Promote mortgage refinancing for energy-efficiency projects by:
  - Developing a European standard for green mortgages that explicitly includes and supports refinancing for renovation.
  - Including clauses in mortgage contracts that facilitate refinancing for energy-efficiency projects.
  - Introducing rebates or exemptions, through the competent national authorities, for some of the costs involved in mortgage refinancing (for example, stamp duty).
- Promote European energy-efficiency mortgages.
- Ask the competent European and national authorities to accelerate, refine and strengthen the introduction of a climate and energy factor for buildings and homes within the European Capital Requirements Regulation and Basel Pillar 1, to encourage green mortgages and allow financial institutions to offer more competitive pricing.
- Create a database with information on energy consumption, EPCs and the energy savings delivered by active and passive energy-efficiency measures.
- Provide evidence of the green premium in housing values.
- Ensure that discounts linked to energy-efficiency criteria are always applied and are not limited by accumulated discounts from other contracted products. Avoid situations where discounts offset one another.

Romania Green Homes and Green Mortgages Program

The Romania Green Homes and Green Mortgages Program was established in 2012 with funding from the European Commission (9). It consists of two elements:

1) Green Homes certification by the Romanian Green Building Council (RoGBC); and
2) Green Mortgages offered by commercial banks to buyers of homes certified by the RoGBC.

All banks offering mortgage loans in Romania can participate, provided they agree to adopt the RoGBC's criteria and independent certification system for green homes, and offer reduced interest rates on RoGBC-certified homes. The mortgages provided do not include any public subsidy. Banks offer lower interest rates because certified green homes present both a lower mortgage default risk and a higher asset valuation. The National Bank of Romania also allows green homebuyers to include estimated energy savings as an additional source of income in loan applications, enabling borrowers to access higher loan amounts for energy-efficient renovation or construction.

Source: European Commission Recommendation C/2023/1553, 2023[24]

Mandatory use practices of EPCs

In In Greece, the *SAVING* program for owners of residential properties requires the use of Energy Performance Certificates (EPCs) both for the initial application and for the subsequent certification of the project. EPCs are used to prioritize the worst-performing buildings during the application phase and to confirm that buildings have achieved significant energy savings once the works have been completed. In Romania, an EPC is required for the pre-renovation status of the building (together with the energy audit report), and a new EPC is required for the building after renovation (once all works have been completed), accompanied by an execution report describing how the impact indicators have been met. The impact of the renovation is assessed by comparing the initial and final EPCs in terms of:

i) changes in final energy and primary energy;
ii) CO_2 emissions, and
iii) the share of renewable energy (and other relevant key performance indicators).

In Portugal, EPCs are used to evaluate the results of the incentive program itself at an aggregate level.

Source: European Commission Communication C(2025) 4132 final[25]

24 European Commission Recommendation C/2023/1553, 2023 of 12 December 2023 on the transposition of Article 30 on National Energy Efficiency Funds and financial and technical support, of Directive (EU) 2023/1791 on energy efficiency (recast EED). https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=OJ:C_202301553

25 European Commission Communication C(2025) 4132 final providing guidance on the new or substantially amended provisions of the recast Directive (EU) 2024/1275 on the energy performance of buildings. Annex 2 on financial incentives, capacities and market barriers (Article 17) and one-stop shops (Article 18). https://tinyurl.com/3ddampcz

GREEN REVERSE MORTGAGE

A reverse mortgage is a financial product aimed at people over the age of 65 (70 in some cases) or persons with a disability equal to or greater than 33%. It enables them to obtain liquidity by using their primary residence as collateral, without needing to move or give up ownership. The income for the homeowner can be received as a monthly payment, a life annuity, or a single upfront disbursement.

The debt is generally repaid through the sale of the property after the owner's death, or by the heirs if they choose to assume the debt.

In a green reverse mortgage, part of the income is allocated to financing energy-efficiency improvements, particularly for groups of older people who are required, either by regulation or by homeowners' association agreements, to undertake renovation works in buildings or homes.

Main challenges

- There is no European standard for green reverse mortgages.
- The product structure is complex and involves high management and transaction costs.
- Interest rates are typically high and fixed.
- Older homeowners often have limited financial resources, reducing their willingness to invest in energy-efficiency improvements.
- Reverse mortgages are not widely used in Spain. In 2024, only 305 reverse mortgages were formalized, according to the General Council of Notaries.

Main proposals

- Promote green reverse mortgages for older homeowners undertaking deep renovations, especially when energy-efficiency investments are required by law or by homeowners' association agreements.
- Develop a European standard for green reverse mortgages.
- Provide greater repayment flexibility for heirs.
- Allow improved mortgage conditions when the income is used for renovation or revitalization works that increase the property's value.
- Implement long-term subsidized financing lines for deep renovations in homes occupied by older people, which could also be accessed through reverse mortgages, significantly reducing the financing cost of these products.

GREEN LOANS FOR HOMEOWNERS' ASSOCIATIONS

Green loans for homeowners' associations are financial products designed to finance sustainable projects in multi-family residential buildings, such as replacing shared equipment (for example, boilers) to improve energy efficiency, installing renewable energy systems, or carrying out deep renovation of the building envelope.

Main challenges

- Limited development of regulation for cases of non-payment by homeowners' associations, particularly with regard to enforcement actions against the association.
- Homeowners' associations, as legal entities, are unable to access EU NextGeneration funding lines such as the ICO MRR Green Line.
- Risk of default in vulnerable homeowners' associations (older residents, low incomes, small communities).
- Reluctance among communities to approve this type of debt because of its joint and several nature.
- Lack of awareness of existing public financing mechanisms and aid programs managed at national and regional level in Spain.
- Fragmented and poorly coordinated national, regional and local regulation governing administrative procedures, urban planning, grant schemes and building.
- These regulatory and knowledge gaps reduce awareness among homeowners and property managers.
- Delays in project approval, in granting building permits, and in accessing and disbursing aid.
- Complex and lengthy approval processes in owners' meetings.
- Lack of coordination between public-aid design and allocation and the financial products available to homeowners' associations, limiting the effectiveness of financing mechanisms.
- The current financing system relies mainly on subsidies, which do not guarantee continuity because they depend on annual budgets and budget-execution rules.
- Low energy consumption in vulnerable communities, making it difficult to generate sufficient energy savings to offset the investment.
- High up-front outlay required for deep renovation projects, which means substantial aid is needed for vulnerable groups within homeowners' associations.
- No preferential VAT treatment for investments in deep renovation or in replacing equipment to improve energy efficiency.
- Lack of resources in local public entities to provide professional management and adequate technical assistance for comprehensive revitalization, renovation and rebuilding programs and plans at municipal or neighborhood level, including deep renovations.

- Uncertainty regarding the continuity of technical-assistance programs available to the public sector for implementing urban-renovation programs in neighborhoods, municipalities or cities.
- The National Heritage Law makes it difficult for local public administrations and public entities to transfer profits from more profitable projects (for example, new construction in prime areas) to less profitable projects (such as renovating more vulnerable areas).
- Legal limits on the indebtedness of local public administrations, which require guarantees backed by public budgets rather than by assets.
- Difficulties in integrating renovation projects with other projects with different objectives—such as universal accessibility—within municipal or neighborhood revitalization programs.
- Insufficient qualifications and technical training among property managers, installers, energy-renovation companies and high-quality sustainable-construction firms. The sector is highly fragmented and made up largely of self-employed workers and SMEs. In some areas, qualified renovation companies are not available for large-scale projects led by local authorities.

Main proposals

- Include in the draft of MIVAU's new National Building Renovation Plan a package of support measures for owners of multi-family dwellings in vulnerable situations, to help them overcome a lack of solvency or liquidity constraints when undertaking investments (advice, grants, interest-rate reductions, guarantees, etc.), using criteria such as income, age, number of residents, degraded areas and older buildings. Support should go beyond grants, for example by providing guarantees and technical assistance in housing-renovation projects.
- Simplify procedures for applications, license approvals, and the processing and disbursement of aid, especially for deep renovation projects. Facilitate up-front disbursement or firm advances on grants once they have been approved and cover a high percentage of the renovation cost. Pre-existing arrears of a single resident should not prevent the financial institution from advancing the grant once it has been approved.
- Provide in the regulatory bases for grants that individual owners in vulnerable situations can be the final beneficiaries of aid and allow them to allocate the amount to works carried out in the homeowners' association, thus ensuring their participation in the renovation and energy-efficiency improvement process. Allow the financial institution to receive the grant and exempt the vulnerable owner from joint and several liability for the share of the community loan corresponding to them.
- Design an aid architecture whose structure and channeling can be combined with other financial mechanisms or products available to homeowners' associations, such as credit lines and guarantees provided by public financial institutions like the Official Credit Institute (ICO). This should also include financing mechanisms that are repaid, at least in part, through energy savings generated via Energy Saving Certificates (CAEs) or other instruments based on pay-as-you-save schemes, on-bill payments or tax payments.
- Allow homeowners' associations to access aid directly.
- Promote guarantee schemes for the association in the event of non-payment by residents who become vulnerable.
- Simplify, as far as possible, eligibility criteria and processing requirements for financing granted under ICO lines.
- Strengthen ICO guarantee lines in view of the scheduled end of MRR funds for energy-efficiency renovation and rehabilitation operations in June 2026, including guarantees that protect homeowners' associations against non-payment by vulnerable residents.
- Ask the competent authorities to increase income-tax deductions and reduced VAT rates for deep renovations and for replacing equipment to improve energy efficiency.
- Explore the feasibility of fiscal mechanisms (for example, transferable tax credits) to provide soft-loan schemes and/or grant-based support that reduce the cost of financing or the investment amount, especially for vulnerable groups required to undertake investments either by law (minimum energy-efficiency obligations) or by binding decisions of the homeowners' association.
- Establish in Spain a Comprehensive Renovation and Rehabilitation Service Office to coordinate one-stop shops in line with Article 18 of the EPBD. It should provide comprehensive advice to homeowners' associations and training for property managers.
- Improve coordination with the autonomous communities in managing aid schemes and communication campaigns.
- Promote systems for measuring, managing and monetizing energy savings under the CAE scheme or any other system based on the conversion factors laid out in current legislation.

* Harmonize the role of the Renovation Agent, ensuring robust accreditation and technical training for building renovation facilitators and installers.

* Promote the bundling of projects at municipal or neighborhood level to enable public administrations to undertake comprehensive urban-planning actions, by
  - Requiring, in line with European requirements, a minimum increase in energy efficiency in deep renovation projects (defined as a reduction in primary energy use of at least 30%) together with a graduated scale of aid based on the level of performance improvement. For smaller-scale measures, such as replacing equipment to improve energy efficiency, projects must comply with national regulations transposing the European directives on the energy performance of buildings and, where applicable, equipment must fall within the two highest energy-efficiency classes in accordance with Regulation (EU) 2017/1369 and its delegated acts establishing the energy-labelling framework.
  - Analyzing urban development actions and the need to revitalize existing heritage, seeking interpretations of Royal Legislative Decree 7/2015 (which approves the consolidated text of the Land and Urban Rehabilitation Law) that allow, under certain conditions, municipal management of public assets and the transfer of gains from profitable projects to less profitable ones.
  - Analyzing the possibility for public administrations to provide guarantees with their Public Assets (Law 33/2003 on Public Administration Assets) for financing lines aimed at revitalizing existing real-estate heritage in their areas of influence, especially for vulnerable groups.
  - Creating in Spain a program like the EU ELENA program to strengthen the capacity of local authorities to promote sustainable projects and accelerate the energy transition.
  - In the case of repayable aid, deferring repayment by introducing ecological urban-planning fees or charges for a period long enough to reduce instalments, without mortgages but with entries in the property register restricting the sale of the dwelling until the aid has been repaid or the new owner assumes payment of the fees or charges. In this case, the repayment obligation would be linked to the property rather than the owner. Mechanisms for seizure in cases of non-payment should be established, together with clear enforcement processes.

* Amend Horizontal Property Law (LPH) to promote energy renovation in homeowners' associations, establishing an obligation to assess the building's energy performance and to implement improvements when available public aid covers a significant share of the cost, by.
  - Including two new sub-paragraphs (f) and (g) in Article 10.1 that make it compulsory to: Carry out works or actions that contribute to improving energy efficiency whenever the public aid available to the community covers at least 75% of the cost.
  - Adding a fourth paragraph to Article 9(f) that requires an increase in a specific reserve fund for energy-efficiency measures where:

    1. the energy performance certificate referred to in Article 10.1(f) results in an F or G rating (extremely high energy consumption) and

    2. the actions proposed in the EPC are not approved, with or without subsidies.

    This increase would be made through an extraordinary contribution equivalent to a percentage (to be determined) of each owner's annual fee.

* Promote, at local level, the creation of funds to support Citizen Energy Communities with the participation of specialized municipal public entities, so that they can generate income for the community and reinvest the proceeds in renovation and revitalization projects with environmental and social benefits for the municipality.

Estonia—Business and Innovation Agency (formerly KredEx)

The Estonian Business and Innovation Agency (formerly KredEx) oversees the administration of renovation financing programs for apartment buildings. These programs combine grants, loans and guarantees. Four of these programs are summarized below.

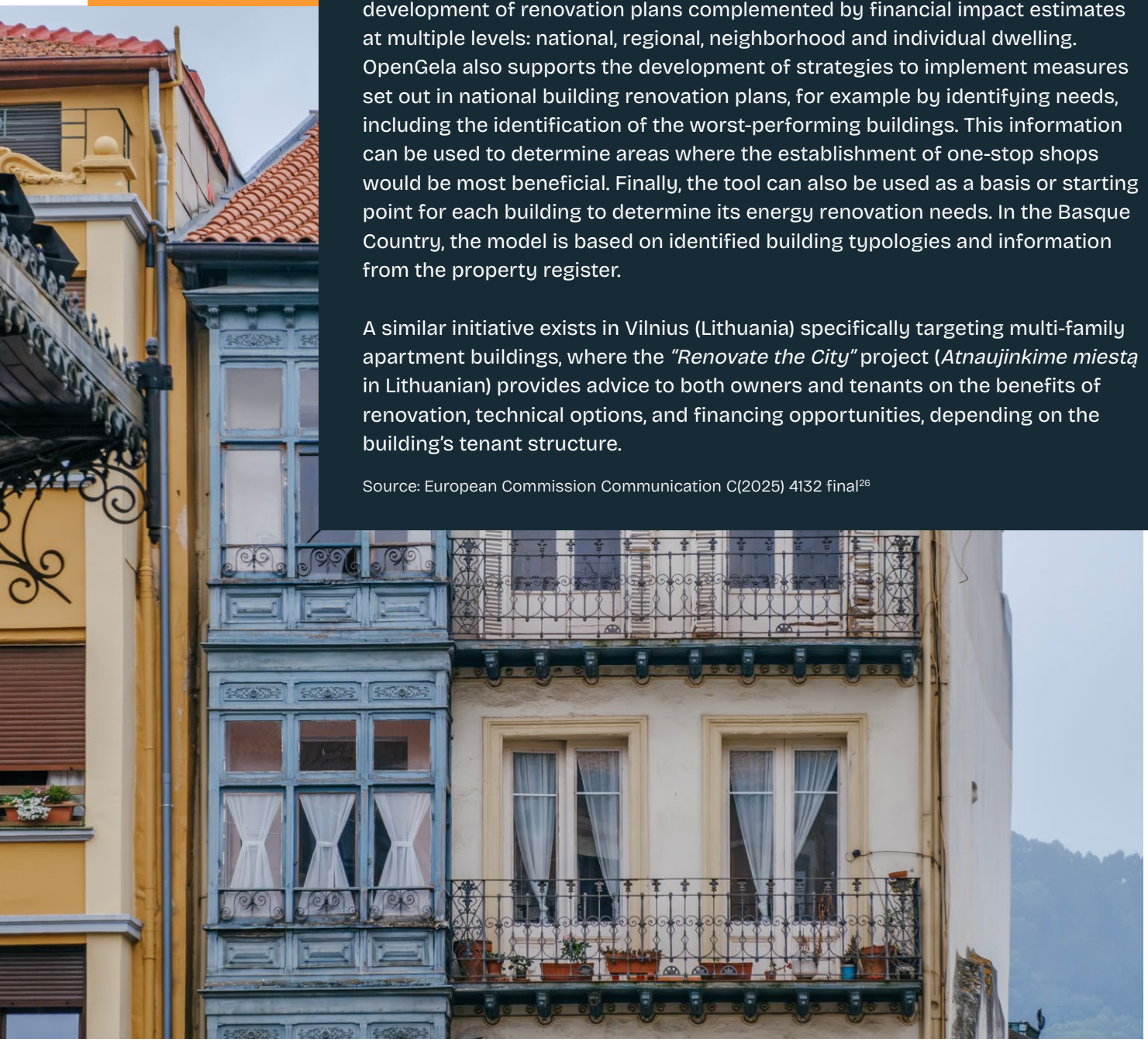
* The Reconstruction Grant 2022–2027 offers a grant covering part of the investment costs that improve the energy performance of apartment buildings with three or more apartments. Buildings must have been in use before 2000 and at least 80% of apartments must be owned by private individuals. The Estonian government has allocated a total of EUR 300 million from EU Structural Funds to this program.
* The Apartment Building Renovation Loan is available to apartment associations that have difficulty securing financing through conventional channels. The minimum loan amount is EUR 15 000. Loan conditions include a self-financing requirement of at least 5% (i.e. apartment owners must finance at least 5% of renovation costs in order to be eligible for a loan covering the remaining 95%)
* The Loan Guarantee for Apartment Associations provides a guarantee of up to 80% of the loan amount for apartment associations that require collateral to secure a bank loan for renovation works. However, this program is not dedicated exclusively to energy efficiency improvements.
* The Factory Reconstruction Grant for apartment buildings facilitates the uptake of new technical solutions in apartment buildings, such as prefabricated and factory-assembled building elements and components that improve the building's energy performance and deliver a better indoor climate.

Household Advisory Practices

The OpenGela pilot project in the Basque Country provides neighborhood-level advisory and support services. This includes administrative, technical and financial assistance related to energy, as well as other relevant topics such as accessibility for people with disabilities. In addition to the one-stop shop service, OpenGela developed an online tool with an energy map of all buildings in the Basque region. The tool provides an integrated framework to support the development of renovation plans complemented by financial impact estimates at multiple levels: national, regional, neighborhood and individual dwelling. OpenGela also supports the development of strategies to implement measures set out in national building renovation plans, for example by identifying needs, including the identification of the worst-performing buildings. This information can be used to determine areas where the establishment of one-stop shops would be most beneficial. Finally, the tool can also be used as a basis or starting point for each building to determine its energy renovation needs. In the Basque Country, the model is based on identified building typologies and information from the property register.

A similar initiative exists in Vilnius (Lithuania) specifically targeting multi-family apartment buildings, where the *"Renovate the City"* project (*Atnaujinkime miestą* in Lithuanian) provides advice to both owners and tenants on the benefits of renovation, technical options, and financing opportunities, depending on the building's tenant structure.

Source: European Commission Communication C(2025) 4132 final[26]



26 European Commission Recommendation C/2023/1553, 2023 of 12 December 2023 on the transposition of Article 30 on National Energy Efficiency Funds and financial and technical support, of Directive (EU) 2023/1791 on energy efficiency (recast EED). https://energy.ec.europa.eu/document/download/dbd4ba41-e69f-44cf-aa6c-4d742b5afada_en?filename=EPBD%20guidance%20%28package%29.pdf

GREEN LOANS

Green loans for the renovation of buildings and homes are generally designed to finance individual investments that improve the energy efficiency of existing buildings, such as installing insulation, solar panels or low-consumption heating systems, as well as replacing equipment with more efficient alternatives.

Main challenges (Only the challenges specific to this mechanism are included here in order to avoid repeating points already covered for other instruments.)

- Heterogeneity of eligibility criteria and the complexity of the technical requirements needed to access certain financing lines from national or European public funds (MRR lines).
- Lack of data to comply with the information requirements established for financial institutions under the Taxonomy Regulation and the SFDR. Limited information on energy savings, energy use, consumption and emissions of existing buildings and homes, and on potential energy efficiency measures, makes it difficult to apply eligibility criteria, especially when green loans are granted using European funds.
- No differences in Pillar 1 standards for addressing ESG risks or recognizing lower capital requirements for green loans for renovation and refurbishment to improve energy efficiency.
- High financial costs due to the nature of consumer loans.
- Vulnerable groups lack access due to limited solvency or liquidity.
- Low use of the ICO Verde MRR Mediation Lines and the ICO MIVAU Line for RESIDENTIAL BUILDING RENOVATION guarantees, due to processing complexity that is ultimately transferred to financial institutions.
- Difficulty in securitizing green renovation loans since most energy-efficiency measures involve relatively small investments. This complicates the aggregation of operations into portfolios of sufficient size for securitization or for sale on capital markets to achieve greater mobilization of bank financing, for example through the issuance of Green or Sustainable Bonds or securitization funds.
- Reluctance among homeowners to take on debt, particularly when the benefits of renovation in terms of energy savings, quality, comfort and increased property value are not clearly perceived.
- Personal income tax incentives often fail to reach elderly or low-income homeowners, as they do not have sufficient taxable income to benefit from such deductions. Additional tax incentives such as a reduced VAT rate (4% or 5.5%) have not yet been implemented.

GREEN LOANS

Main proposals

- Create an aid structure whose design and implementation can be complemented and combined with other available financial mechanisms or products, such as guarantees, grants or public financing. Also promote financing mechanisms that are repaid at least partly through energy savings using CAEs or other instruments based on pay-as-you-save models, on-bill repayment or tax repayment.
- Establish obligations for homeowners to provide energy-related data (consumption, equipment efficiency, energy savings) to be incorporated into publicly accessible digital documentation so that financial institutions can apply eligibility criteria more effectively.
- Establish a public digital database containing energy and emissions data for buildings and homes.
- Develop the European Capital Requirements Regulation so that differentiated and lower capital requirements can be recognized for green renovation loans (for example, through the introduction by the European Central Bank of a climate factor in its collateral framework from 2026).
- Harmonize European standards and simplify eligibility criteria for green loans for the renovation of homes.
- Promote financing models in which installed equipment is pledged as collateral without requiring its physical removal, in order to reduce financing costs.
- Establish public guarantee lines for people in vulnerable situations.
- Explore and encourage sustainability-linked loans for homeowners, in which loan conditions vary depending on the level of energy-efficiency improvements achieved. This requires implementing measurement systems within homes.
- Allow the use of employment pension funds and long-term savings products in cases where deep renovation or refurbishment of housing is required. The relationship between housing and teleworking is increasing.
- Amend Article 3 of Royal Decree 390/2021 of 1 June, which approves the basic procedure for certifying the energy performance of buildings. Require an EPC to be mandatory for accessing aid, for accessing a mortgage or for obtaining a green renovation loan. Make it compulsory to include the EPC in property valuations so that the Bank of Spain recognizes the need for EPCs in valuations and in financial products linked to housing. Public buildings and social housing should set an example. MIVAU should establish grants for vulnerable groups who must bear the cost of obtaining the EPC.

6.2. Financing from utilities, ESCOs and Energy Saving Certificates (CAEs)

ENERGY PERFORMANCE CONTRACT (EPC)

The **Energy Performance Contract (EPC)** is an agreement between the beneficiary and an energy service company (ESCO), which implements, verifies and monitors energy-efficiency measures in order to certify the level of efficiency achieved. The ESCO therefore assumes the technical risk associated with the implementation.

Objectives:

- Facilitate access to customized energy solutions that generate energy savings for the beneficiary.
- Guarantee a continuous energy supply that adapts to the beneficiary's needs.
- Establish a collaborative framework between the ESCO and the beneficiary, enabling both parties to maximize energy efficiency so that savings begin to accrue from the start of the contract. These savings partially offset the repayments to be made by the beneficiary.
- Enable the monetization of energy savings through the issuance and sale of Energy Saving Certificates (CAEs) under the Spanish verification and settlement system.

The participation of the ESCO is crucial because it:

- Assumes the technical risk of the Project
- Mobilizes private financing by negotiating directly with banks and major financiers, or by offering financing directly to the property owner where permitted by national regulation and resource availability
- Provides measured and guaranteed savings
- Monitors and facilitates technological innovation
- Must have proven experience and be properly qualified or certified

The scheme may also include agreements and structures with banks providing financing, as well as special purpose vehicles (SPVs) that help attract investors and mobilize additional financing.

ENERGY SAVING CERTIFICATES (CAES)

Energy Saving Certificates (CAEs for their Spanish acronym) can also contribute to financing structures by reducing financing costs and increasing profitability through their sale.

Energy Saving Certificates (CAEs) can also contribute to financing structures by reducing financing costs and increasing profitability through their sale.

A CAE is an electronic document that, once verified, certifies that an energy saving has been achieved after implementing an energy efficiency measure. Savings are estimated in advance using standardized technical criteria and conversion factors stipulated for ordinary energy efficiency measures. These values are documented in standard data sheets that simplify documentation and validation requirements. For singular projects, which are larger in scale and complexity, an independent, project-specific estimate by an expert is required. Once accredited by the competent authority of each autonomous community and verified by an external body, the resulting energy-saving asset can be traded on the market. In this way, CAEs create an incentive to invest in energy efficiency and improve returns on such investments. Their sale requires prior verification by a certifier accredited by the National Accreditation Body (ENAC). Royal Decree 36/2023 of 24 January regulates the implementation of Article 71.2 of Law 18/2014 of 15 October, establishing a mechanism to certify annual energy savings by presenting CAEs.

Energy companies, whether generators or distributors, given their knowledge of customers' payment histories and energy consumption, can offer energy-efficiency solutions, typically related to the installation of high-efficiency equipment or the replacement of inefficient equipment. In these cases, the energy company finances 100 percent of the initial cost of the project and acquires the equipment, installing it at its own expense and therefore becoming the owner of the energy assets, which are transferred to the customer at the end of the project. Installation and equipment provision may be carried out through an ESCO or accredited installers.

Homeowners make up the customer base of energy companies, which hold extensive information on their energy consumption and payment history. This facilitates market segmentation and other measures to maximize the impact and effectiveness of energy-equipment replacement campaigns.

The periodic fee used to finance the installation of the new equipment (equipment which will generate energy more efficiently) is paid by the customer through on-bill repayment schemes in which the instalment is included on the energy bill over the lifetime of the equipment, or for a sufficiently long period. The final bill amount will depend on the energy savings generated by the high-efficiency equipment, which may fully or partially offset the periodic payment.

Main challenges (challenges (the main challenges are set out so as not to repeat those already mentioned in other financing mechanisms)

ENERGY PERFORMANCE CONTRACTS

- Excessive complexity of energy performance contracts for the residential segment of homeowners.
- High interest rates and operating costs
- Limited awareness of the role of ESCOs and EPCs in the residential segment.
- Lack of accreditation systems for the technical qualifications of ESCOs for innovative energy efficiency measures that are still at an early stage of implementation.
- Due to their small size, ESCOs seek projects with relatively short payback periods, which excludes deep renovation of passive elements.
- Inability of ESCOs to act as financing providers.
- ESCOs face difficulties accessing public aid, guarantees or soft public financing lines for renovation measures, or acting as financial intermediaries when channeling public subsidized aid or public subsidized financing lines.
- Uncertainty regarding the energy savings that will be generated by certain energy-efficiency measures when the level of savings depends on the behavior of the owner or tenant.
- Lack of awareness or information among homeowners about the potential for energy savings.
- Inability to access energy-consumption and payment history as an indicator of homeowners' creditworthiness and energy behavior.
- Lack of technological systems for monitoring, operation, data capture, measurement and analysis of energy consumption and savings in homes.
- Low viability of Energy Performance Contracts (EPCs) in the residential segment due to the many households' low energy consumption. Transaction costs are too high relative to investment and energy savings generated, so these contracts are normally reserved for the industrial and services sectors.

ENERGY SAVINGS CERTIFICATES (CAES)

Main challenges

- Limited catalogue of CAE data sheets with standardized measures for deep renovation and housing rehabilitation.
- Limited implementation of CAE price multipliers for renovation and rehabilitation projects in the residential segment.
- CAEs cannot be pledged as collateral favor of financial institutions.
- Existing delays in the validation, issuance and sale of CAEs create uncertainty, hinder the aggregation of CAEs into portfolios for subsequent sale, and weaken their usability as collateral in financing.
- Limited aggregation of CAE portfolios reduces the potential to attract private capital through sales processes for large-scale projects linked to public programs for urban renewal and renovation.

ENERGY COMPANIES (UTILITIES) AND ON-BILL PAYMENT SCHEMES

Main challenges

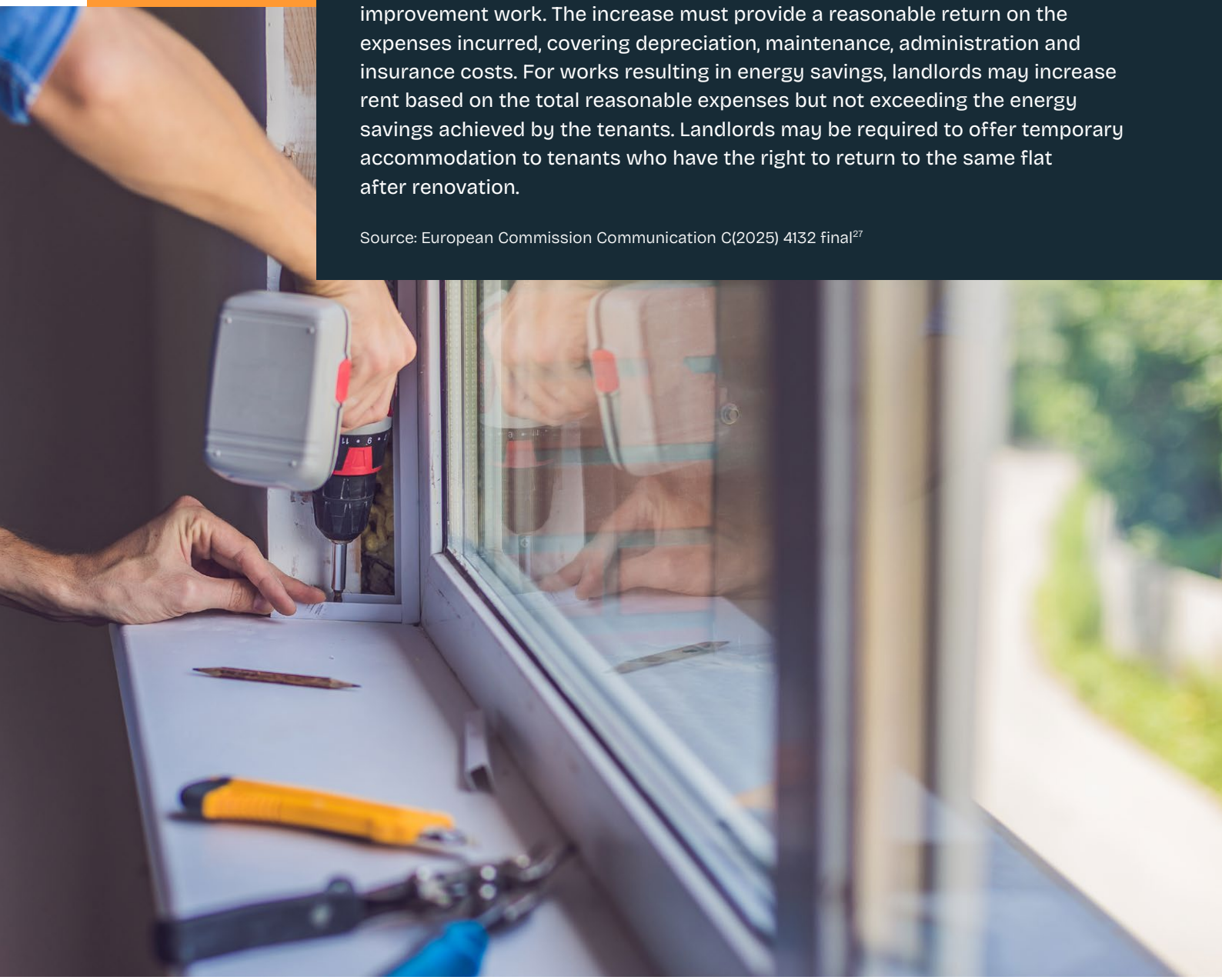
- There is no clear regulation on how to proceed in the event of a change of energy supplier.
- Regulation of the evolving relationship between landlord and tenant needs to be strengthened. Clear procedures are required for situations where the tenant benefits from energy savings, where the tenant assumes all or part of the payment obligation and defaults, and for how the repayment obligation should be legally transferred when the tenant changes.
- Conflicts of interest arise between owners and tenants when the benefits and costs of the investment are unevenly distributed.
- Lending activity is usually reserved for financial institutions, which must meet strict requirements and are subject to significant national regulatory oversight.
- Some subtypes of on-bill payment schemes generate high transaction costs, particularly when banks and ESCOs are incorporated into the model.
- Lack of protection in the event of non-payment. In most EU countries, the disconnection of energy supply to households is legally restricted to a few scenarios, and vulnerable consumers are usually protected. Additional safeguards are therefore needed, such as insurance or other guarantee instruments.
- Complex decision-making processes within homeowners' associations make it difficult for an energy company to successfully negotiate renovation agreements for common elements in multi-family buildings.
- Homes and buildings often lack technological systems for control, operation, measurement and analysis of energy consumption. This makes it difficult to estimate the energy savings that could fully or partially offset the on-bill repayment.
- Energy companies may face a conflict of interest between promoting energy savings and maintaining energy sales, since energy-efficiency investments can reduce consumption.
- Energy suppliers and distributors appear less interested in launching deep-renovation programs through on-bill schemes, although there are some examples (such as replacing coal boilers with gas boilers in residential buildings).
- The residential segment is highly fragmented, with renovation projects that are generally smaller in scale than deep-renovation projects.
- Demand for investments in energy-efficient equipment in homes is not always sufficient to scale up on-bill payment schemes.
- There is limited awareness of the energy savings and other benefits in comfort and quality resulting from renovation and refurbishment measures.
- Energy-efficiency measures are often associated with ESCOs or, in the case of deep renovations, with construction companies. For this reason, linking these activities to energy suppliers still feels new and unfamiliar.
- Energy companies can implement certain types of renovations, such as boiler replacement or LED lighting. However, deep-renovation measures such as wall insulation or window replacement may need to be carried out by other actors and through more suitable schemes that do not involve energy companies. In these cases, the availability of expert providers such as ESCOs, construction firms, architects or engineers is essential.

Example of addressing conflicts of interest between owners and tenants

In Germany, the Wohngeld scheme is available for low-income households and provides financial support to cover housing costs. Support levels are partly determined by energy and carbon costs, but since the most recent update in 2022, they also include a component to reflect higher rents in renovated buildings.

In Denmark, under the Rent Act and the Housing Regulation Act, rent increases must be mutually agreed and based on the documented cost of the energy improvement work. The increase must provide a reasonable return on the expenses incurred, covering depreciation, maintenance, administration and insurance costs. For works resulting in energy savings, landlords may increase rent based on the total reasonable expenses but not exceeding the energy savings achieved by the tenants. Landlords may be required to offer temporary accommodation to tenants who have the right to return to the same flat after renovation.

Source: European Commission Communication C(2025) 4132 final[27]



27 European Commission Recommendation C/2023/1553, 2023 of 12 December 2023 on the transposition of Article 30 on National Energy Efficiency Funds and financial and technical support, of Directive (EU) 2023/1791 on energy efficiency (recast EED). https://energy.ec.europa.eu/document/download/dbd4ba41-e69f-44cf-aa6c-4d742b5afada_en?filename=EPBD%20guidance%20%28package%29.pdf

Main proposals

ENERGY PERFORMANCE CONTRACTS (EPCS)

- Introduce incentives such as the sale of CAE portfolios within on-bill schemes, helping reduce financing costs for energy companies and, in turn, lowering overall financing costs for homeowners.
- Combine these structures with grants, tax exemptions (income tax, reduced VAT, etc.) or other incentives for homeowners and vulnerable groups, especially when the measures reduce investment needs, lower financing costs or significantly shorten the payback period. ESCOs should also be able to access these forms of support, including public guarantees for projects involving vulnerable groups.
- Increase communication and marketing campaigns by energy companies to highlight the benefits of energy savings and the improvements in comfort and quality that renovation measures deliver.
- Create a digital platform with information on energy-efficiency measures, on-bill charges applied, energy savings achieved, and the way these savings are integrated into associated financial products.

ENERGY SAVING CERTIFICATES (CAES)

- Promote the use of a multiplier system for Energy Saving Certificates (CAEs) applied to housing renovation measures.
- For projects involving vulnerable homeowners' associations, implement a Social Energy Saving Certificate that captures lifetime energy savings from efficient equipment.
- Consider energy saving certificates for building-envelope upgrades, recognizing the greater value of the savings delivered through the envelope and treating the portion of the façade that improves performance as a financial asset.
- Explore the possibility of pledging CAEs as collateral in favor of financial institutions.
- Include CAE estimates in renovation and equipment-replacement budgets to raise awareness and improve integration with financing mechanisms.
- Apply EPCs and CAEs in large multi-family buildings or large residential developments for deep renovations or for replacing common equipment with high-efficiency alternatives. They may also be applied in public-building renovation projects at neighborhood, district or municipal level, for the centralized installation of urban heating and cooling equipment and distribution systems using insulated pipes.

ENERGY COMPANIES (UTILITIES) AND ON-BILL FINANCING SCHEMES

Main proposals

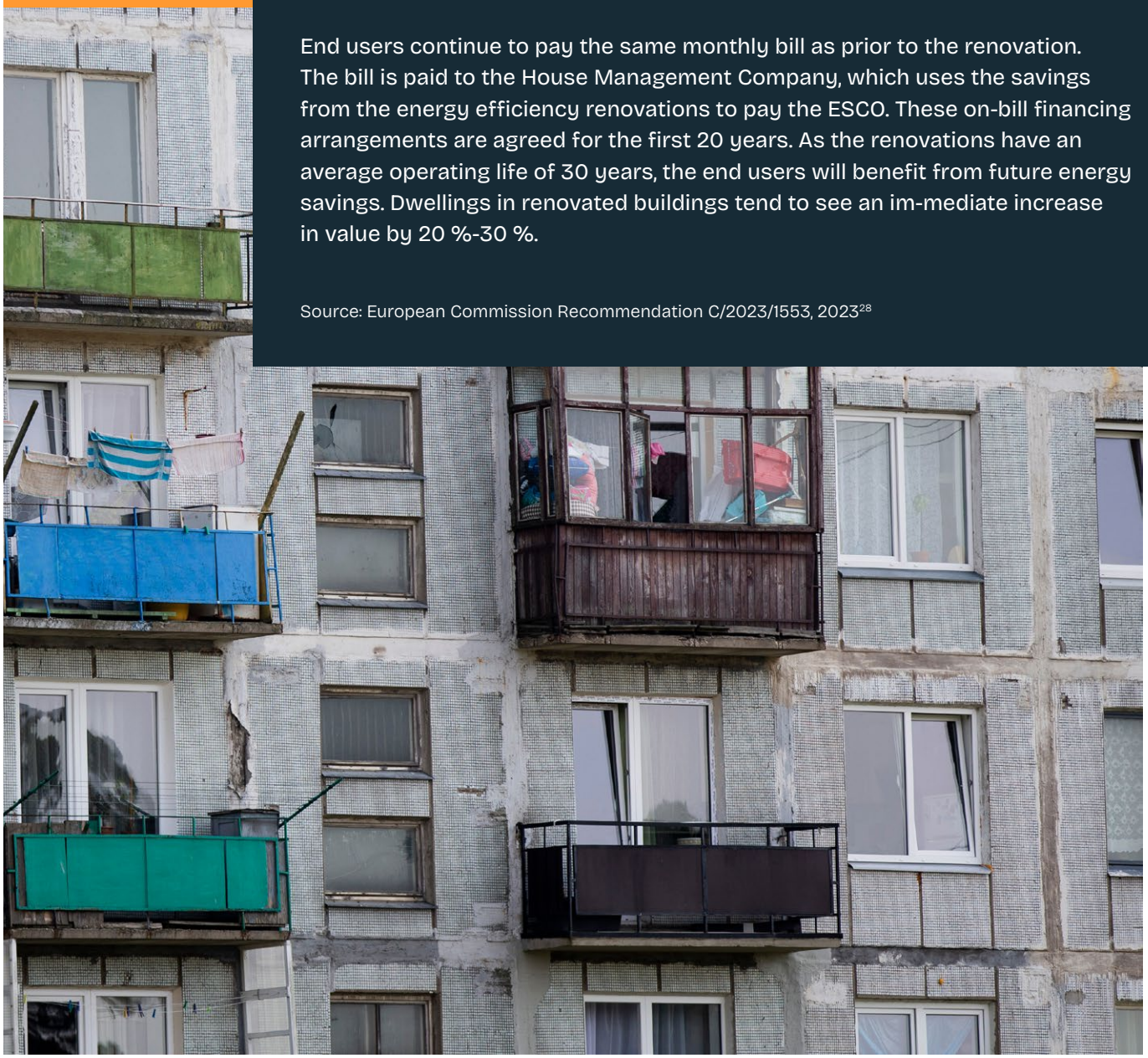
- Allow on-bill financing schemes to be treated as tariff debt for a service that can be transferred easily when a tenant or owner changes, meaning it does not constitute lending activity by energy companies.
- When these schemes function as credit agreements, they must comply with the Consumer Credit Directive and the Mortgage Credit Directive.
- Establish a government- or regulator-approved bill tariff to support more effective on-bill schemes, improving the transferability of repayment contracts between end users and energy suppliers.
- Install individual meters to address landlord-tenant split-incentive issues and enable accurate allocation of the costs and benefits of renovation measures.
- Implement systems for verifying the quality of the energy-efficiency measures offered by energy companies to avoid conflicts of interest with their core business of energy generation and sales.
- Combine on-bill schemes with agreements with installers or ESCOs to install energy-efficiency equipment and manage repayment through on-bill financing.
- Ensure that, in the event of a change of energy supplier, payments linked to tariff debt continue to be received by the original supplier without requiring early contract termination or full reimbursement of equipment costs.
- When a home is sold or rented, require the new owner or tenant to assume the remaining instalments, with payments automatically directed to the original supplier.
- Introduce minimum energy-performance standards for residential buildings and progressively tighten these standards over time.
- Combine minimum energy-efficiency obligations with grants and guarantees for groups with limited borrowing capacity or in vulnerable situations, particularly when the investment is mandated by law or by homeowners' association decisions.
- Create a national guarantee fund for vulnerable groups. Guarantees provided by MIVAU or ICO could reduce perceived investment risk for energy companies or financiers, leading to lower interest rates, greater loan attractiveness and higher investment levels.
- Use utility bill payment history as a potential indicator of the creditworthiness of homeowners or tenants. National regulators could support its inclusion in credit-risk models used by energy companies or financial institutions.
- Allow energy companies to engage in lending activities, enabling them to scale up on-bill schemes and provide upfront investment through loans repaid by end users.
- Use national government training and knowledge-sharing programs to address the limited experience of energy companies and the low availability of qualified energy-service providers.
- Allow energy companies to access ICO MRR mediation financing lines for renovation measures and MIVAU-backed guarantees. EU funds for energy renovation, including the Recovery and Resilience Facility (available until June 2026), ETS revenues and the Social Climate Fund, could also be channeled as grants or low-cost energy-efficiency loans.
- Report on the renovation impacts achieved through on-bill schemes and accompanying communication campaigns.

Latvian Sunshine program and Latvian Building Energy Efficiency Fund

The Sunshine program was initiated as a Horizon 2020 project to support the deep refurbishment of Latvia's relatively inefficient building stock (17). Each project is delivered by an ESCO, (18) which implements large renovations of multi-family residential buildings, such as retrofits to the building envelope, insulation of heat distribution pipes, installation of control systems, etc. The projects hinge on an Energy Performance Contract, in which the ESCO guarantees that renovations will achieve a specified level of energy savings. The projects are financed up to 40 % with funds from the European Regional Development Fund and the remaining part is obtained through on-bill financing.

End users continue to pay the same monthly bill as prior to the renovation. The bill is paid to the House Management Company, which uses the savings from the energy efficiency renovations to pay the ESCO. These on-bill financing arrangements are agreed for the first 20 years. As the renovations have an average operating life of 30 years, the end users will benefit from future energy savings. Dwellings in renovated buildings tend to see an im-mediate increase in value by 20 %-30 %.

Source: European Commission Recommendation C/2023/1553, 2023[28]



28 European Commission Recommendation C/2023/1553, 2023 of 12 December 2023 on the transposition of Article 30 on National Energy Efficiency Funds and financial and technical support, of Directive (EU) 2023/1791 on energy efficiency (recast EED). https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=OJ:C_202301553

6.3. Public–private collaboration in renovation financing. Main instruments

PROPERTY-LINKED FINANCING SCHEMES WITH PAYMENT THROUGH TAXES OR URBAN DEVELOPMENT CHARGES

Property-linked financing (PLF) schemes provide access to affordable, long-term financing for environmental improvements in buildings by tying the financing obligation to the property rather than to the individual owner. This allows the payment obligation to be transferred to the new owner at the time of sale.

Financing schemes structured through tax payments, typically in the form of a specific surcharge or urban development charge, include mechanisms that allow the debt to remain attached to the property and be transferred upon sale without necessarily being settled beforehand. If the property is sold, the outstanding amount may be repaid at that time, or the charge may be assumed by the new owners if they agree.

In practice, the payment obligation does not arise from a traditional loan. Owners commit to paying a dedicated environmental or urban development surcharge periodically over a long period. In return, they do not need to make the upfront investment required for energy-efficiency works and equipment in the home.

Tax-based financing can come from public sources, such as municipal governments, or from private funds.

Tax-based financing can come from public sources, such as municipal governments, or from private funds. The public sector may also participate in the recovery of unpaid charges or act as an intermediary in cases of liquidity or solvency difficulties, for example by providing complementary risk-mitigation tools. This reduces the risk borne by investors. Because of this public involvement, investor risk is reduced, allowing vulnerable households to be included, extending repayment periods, and enabling lower financing costs.

PROPERTY-LINKED FINANCING SCHEMES WITH PAYMENT THROUGH TAXES OR URBAN DEVELOPMENT CHARGES

Main challenges

- Complex structure requiring changes to national and EU regulatory frameworks in taxation, local government and financial supervision.
- Need to review the Local Finance Law or the Local Government Framework Law to determine whether property tax could be used as a repayment mechanism.
- The regulatory framework should explicitly allow the use of urban development fees or charges for revitalization and rehabilitation projects.
- The EU regulatory framework does not currently support long-term, property-linked financing mechanisms beyond traditional mortgages.
- Consider the use of property-based guarantees, such as land registry annotations that restrict the sale of a dwelling when a surcharge or approved charge is in arrears.
- Possibility of creating guarantee funds financed through the collection of fees, property taxes or urban development charges.
- These mechanisms remain little known and only lightly implemented in Europe

Main proposals

- Regulate supervisory implications relating to minimum capital requirements, collateral treatment and the feasibility of securitization. Review the legal framework governing property levies and their classification as collateral in relation to mortgages and enforcement. Establish mechanisms to ensure that, in cases of non-payment, enforcement is fully effective. Assess whether these mechanisms could receive the same or a similar prudential classification as mortgages.
- Review and amend regulations concerning property taxes, fees, charges and other levies to enable tax-based financing schemes. This requires assessing and, where necessary, revising the Local Finance Law or the Local Government Framework Law.
- Allow the public sector to participate in recovering tax debts or, in cases of vulnerability and liquidity or solvency constraints, provide complementary public risk-coverage tools, such as guarantees for vulnerable households, thereby reducing investor risk.
- Implement training and technical-assistance programs for public administrations (for example, under ELENA) to support the development of these schemes.
- Deliver tax-based financing schemes through one-stop shops that provide an integrated package of services for energy-efficiency renovation, including the associated tax-based financing mechanism.
- Integrate these schemes into large-scale urban revitalization projects at city, district or municipal level.
- Promote a European regulatory framework that enables financial institutions to develop long-term, property-linked financing mechanisms for residential renovation without relying solely on mortgages. This framework should allow for property-based guarantees, land-registry annotations and national guarantee funds financed through property taxes or urban development charges.

BLENDED FINANCE MECHANISMS

Blended finance mechanisms combine different degrees of concessionality and different investor or financier profiles, both public and private, through structures typically based on Public–Private Partnerships (PPPs). Using dedicated investment vehicles or securitization funds, these structures mobilize private capital for projects that would otherwise remain unfunded. Examples include social housing, large-scale renovation programs involving vulnerable groups, or neighborhood- or district-level renewable heating and cooling systems.

They are often combined with risk-mitigation instruments such as first-loss guarantees, caps on the maximum interest rate payable to a public investor, grants for technical-assistance tranches and, in some cases, pay-for-performance schemes or social-impact contracts. Combined with the participation of public actors (public development banks, multilateral institutions, public funds, among others) in lending or investment roles, these mechanisms increase the ability to attract private capital.

These approaches are common in infrastructure and utility projects in emerging markets and are also used in certain social-impact projects.

Main challenges

- High transaction and structuring costs. These mechanisms require the creation of public–private management entities and specialized investment vehicles capable of aligning different investor or financier profiles and managing all the instruments involved.
- Dependence on large public–private projects, such as neighborhood-level revitalization or renovation, social-housing development, or investment in district heating and cooling networks.
- Need for more robust and effective guarantee mechanisms to mitigate risk in sustainable construction or renovation projects, especially when vulnerable groups are involved.
- Additionality requirement. These mechanisms are suited to projects that would likely remain unfunded by markets without concessional elements.
- Existence of multiple financing and support instruments (grants, technical assistance, guarantees and low-cost public financing) that are often related but poorly coordinated, and whose interoperability is essential. There is limited experience and capacity to combine these instruments using PPP-type structures in the context of residential renovation. Some applications exist at neighborhood, city or municipal level, including social-housing projects.

BLENDED FINANCE MECHANISMS

Main proposals

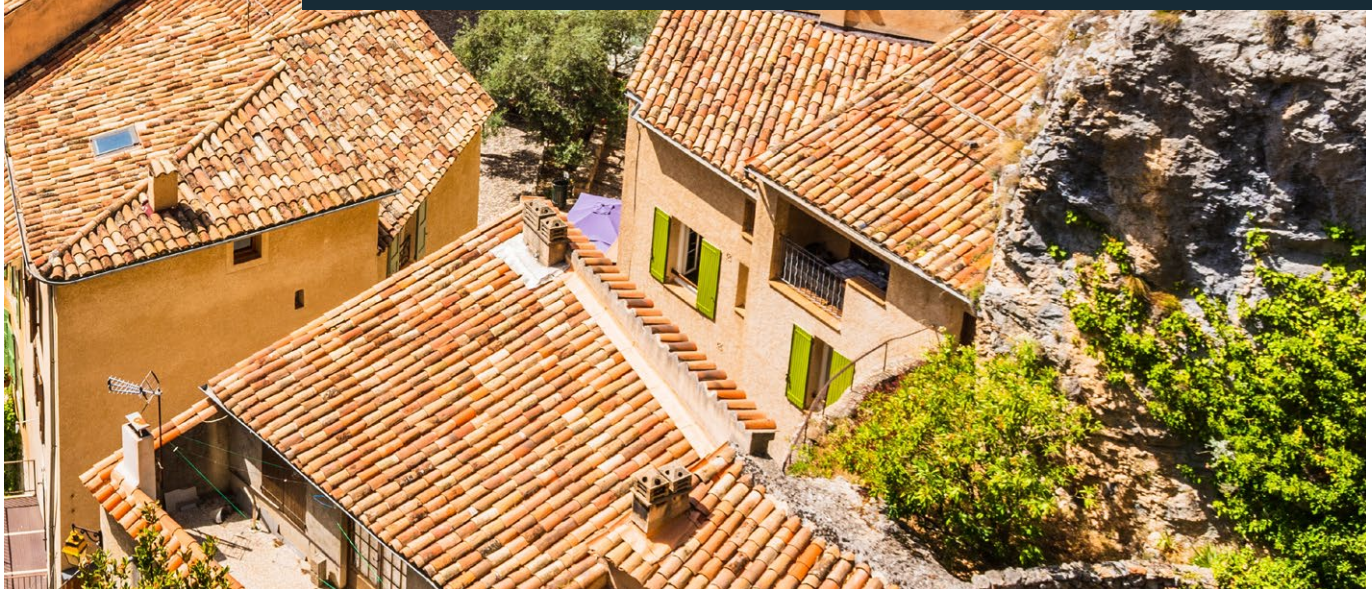
- Combine the following mechanisms within a PPP structure:
  - Guarantee funds. A public or philanthropic guarantee fund can cover part of the loans granted by private investors to social-housing projects or deep renovations for vulnerable or energy-poor households, reducing risk and facilitating access to finance. Public guarantees may be issued by existing public financial institutions such as national public banks or national funds (including national energy-efficiency funds). Other options include using the InvestEU program or EU-level guarantees through the "Member State compartment" contribution mechanism.
  - Grants for technical assistance financed through European programs such as the EIB's ELENA facility or the European Commission's BUILD UP initiatives, which provide technical assistance and capacity-building support for public administrations.
  - Public loans on favorable terms, for example with lower interest rates or longer repayment periods.
  - Private capital from investors with different return expectations. An impact-investment fund may invest directly in social-housing projects, contributing not only financial resources but also expertise in management and sustainability.
- Public–private partnerships: Collaborations among governments, private companies and civil society organizations can be established to deliver social housing projects or urban regeneration programs using blended finance structures.
- Transparent planning and procurement for PPPs: Member States can facilitate access for specialized investors and private-sector financial institutions by publishing energy-efficiency PPP plans through open and competitive tendering procedures.

Hauts-de-France Pass Rénovation

Hauts-de-France Pass Rénovation is a comprehensive one-stop shop set up by a regional authority to support the renovation of residential buildings in the region. Its aim is to reduce energy consumption in residential buildings, combat energy poverty and demonstrate that financing energy efficiency is low risk in order to encourage private banks to develop more products. The program was piloted in 2013 in Picardy and has since been expanded to the entire Hauts-de-France region.

Several measures are used in the project to increase the visibility, availability and accessibility of loan products for energy efficiency. A publicity campaign was carried out to raise public awareness of the project. Support is available to all owner-occupiers or tenants of residential dwellings, regardless of age and dwelling type. Various financing solutions are offered, such as a standalone loan offer, interest-free "eco-loans" (under the regulated national scheme) and easy access to loans from third-party financial institutions. Loan maturities can extend up to 25 years depending on the duration of the specific renovations. Pre-financing of works is provided, and repayments are made only at the end of the project. To ensure affordability, monthly payments take into account the expected energy savings. Low-income beneficiaries who cannot afford to repay the loan may also benefit from financial support provided by the national housing authority, ANAH. Technical support is also provided to households, including a thermal audit of their home, advice on renovation works and energy-saving potential, support for contracting companies, on-site monitoring during renovations and post-renovation energy-consumption monitoring.

Source: European Commission Recommendation C/2023/1553, 2023[29]



29 European Commission Recommendation C/2023/1553, 2023 of 12 December 2023 on the transposition of Article 30 on National Energy Efficiency Funds and financial and technical support, of Directive (EU) 2023/1791 on energy efficiency (recast EED). https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=OJ:C_202301553

ENERGY COMMUNITIES AND CITIZEN ENERGY COMMUNITIES

Renewable energy communities focus on generating renewable energy through installations such as solar farms or wind parks and on distributing this energy among their members or selling it to the grid. They apply the principle of proximity: members must be located in municipalities close to the community projects or within a defined radius, depending on the size of the municipality.

Citizen Energy Communities are open, voluntary and autonomous legal entities whose effective control lies with partners or members who live in, or are located near, the areas where the community develops and manages its projects. Members may be individuals, small and medium-sized enterprises (SMEs) or local authorities, including municipalities, that voluntarily cooperate to benefit from a broad range of activities such as the distribution, supply and sharing of energy among members. Communities are guaranteed the right to participate in organized markets, while also assuming responsibility for any imbalances they generate in the system.

Potential Community activities:

* Renewable energy generation
* Home energy-efficiency services
* Storage, consumption and sale of renewable energy
* Development of related services such as electric mobility and charging points
* Municipal-level heating and cooling system projects
* Services to reduce energy poverty, renovation of common areas and creation of new green spaces

A key feature is community participation in management and in the distribution of benefits, either through savings on energy bills from self-consumption or through dividends. Communities may also generate additional income by selling surplus energy to the grid. These financial surpluses can be reinvested in initiatives that deliver environmental or social benefits, including residential renovation projects.

Main challenges

- The draft Royal Decree regulating energy communities (MITECO) has yet to be finalized.
- Establishing a community requires engaging in economic activities that are complex and involve risks for public administrations, which may see their budgets affected.
- Effective operation requires centralized management of a broad set of activities that demand technical skills and specialized expertise.
- Limited local and municipal experience in promoting and participating in these types of communities.
- Insufficient capacity within local public authorities to lead the development of such communities.

Main proposals

- Promote the European Citizen Renovation Support Service in Spain and use it to build capacity in Renewable Energy Communities and Citizen Energy Communities.
- Advance the MITECO draft Royal Decree for regulating energy communities and Citizen Energy Communities.
- Ensure that energy communities can access the Renewable Energy Economic Regime.
- Provide training and technical advice to public administrations, local public bodies and municipalities.
- Strengthen the enabling role of local public administrations, with greater flexibility in the use of public urban assets (review of the Land and Urban Rehabilitation Law).
- Clarify the concept and scope of Citizen Energy Communities.
- Make full use of EU support schemes for Renewable Energy Communities and Citizen Energy Communities.
- Encourage communities to reinvest profits in revitalization projects at local, municipal and neighborhood level.

LISTED REAL ESTATE INVESTMENT COMPANIES (SOCIMIS) FOR SOCIAL HOUSING

SOCIMIs are companies that must allocate at least 80% of their investments to urban real estate intended for rental, to land for developing real estate that will be used for rental, or to shareholdings in other entities whose corporate purpose aligns with that of SOCIMIs. At least 80% of their income must come from leasing real estate used to fulfil their corporate purpose, or from dividends derived from holdings dedicated to that purpose. With a minimum share capital of 5 million euros, they may opt into the special corporate income tax regime for SOCIMIs, under which they may be taxed at 0% provided that the above requirements are met.

It should be recalled that these entities are required to distribute at least 80% of profits from rental income and ancillary activities, and 50% of profits from the sale of properties and holdings linked to their main corporate purpose. The corporate purpose of social SOCIMIs is to invest in housing designated for social housing rental, or in land for developing such housing. A SOCIMI is considered "mixed" when a public or quasi-public entity participates alongside a private entity.

Main challenges

- The cost structure of SOCIMIs is relatively high and requires a large scale of invested capital, which limits their use to sizeable social housing projects.
- Social housing projects must reach a sufficiently large scale to access the tax advantages of the SOCIMI regime.
- Limited experience in social housing and urban regeneration projects, which require specialized expertise and blended financing using multiple instruments.

Main proposals

- Assess additional tax incentives for SOCIMIs with a social impact, including measures that encourage smaller investors to invest in social housing.
- Partners linked to public entities should commit to reinvesting primarily in social projects linked to urban regeneration for vulnerable groups, households in energy poverty, and residents of deprived areas, as well as in programs for deep renovation of building envelopes.
- Promote public-private partnership mechanisms that enable the creation of mixed SOCIMIs in which profits are reinvested in activities that generate environmental and social benefits for the community, including renovation and urban regeneration of the residential stock at neighborhood or municipal level.

SPECIALIZED DEBT FUNDS

Specialized debt funds related to housing generally focus on financing real estate projects by offering loans to developers. These funds do not normally take an equity stake in the special purpose vehicle but instead provide financing secured against the asset. Although more common in tertiary-use construction, they can also be used for developing social housing or acquiring land for social housing projects.

A Social Housing Land Financing Investment Fund is an investment vehicle designed to finance the acquisition of land intended for social housing construction.

These funds may comprise fully private capital, fully public capital or mixed contributions from the private and public sectors, from public financial institutions, the European Investment Fund or national public development banks.

They are often structured as trust funds or revolving funds managed, for example, by a public company of an autonomous community or by a private asset manager. Revolving funds reinvest returned capital into new operations.

Specialized debt funds related to housing generally focus on financing real estate projects by offering loans to developers.

National Energy Efficiency Funds are public funds that may draw on revenues from EU Emissions Trading System auctions, national public budgets, EU financing programs and, in some cases, taxes on fossil fuel consumption or even urban environmental taxes or fees.

A National Energy Efficiency Fund could deploy several instruments that form part of a package of public support, such as soft public loans, tax-based financing schemes or guarantees for green loans.

SPECIALIZED DEBT FUNDS

Main challenges

- The residential segment is characterized by small, fragmented projects that are difficult to serve through specialized debt funds, which require a minimum scale to justify transaction costs. Nevertheless, these funds can be suitable for certain urban revitalization projects, district-level heating and cooling systems or social housing developments.
- Complex structures that tend to involve high transaction costs.
- Need for anchor investors providing catalytic capital, such as the European Investment Fund or national development banks.
- To qualify as sustainable investment funds, they must meet the requirements of the sustainable finance framework, which introduces operational costs (SFDR and ESMA).

Main proposals

- Provide tax incentives to encourage impact investment in social housing.
- Clarify and simplify compliance and verification requirements under the sustainable finance framework so that investment funds allocating assets to social housing can be classified as sustainable.
- Develop a National Social Housing Promotion Program combining grants, guarantees and public financing, enabling scale, facilitating access to capital markets and attracting specialized private debt funds for the acquisition and development of land for social housing.
- Establish a National Fund to launch a national support package that includes public loans, guarantees for renovation projects, grants and related instruments.

Energy Efficiency and Renewable Energy Fund of Bulgaria

The Energy Efficiency and Renewable Energy Fund (EERSF) was established in 2004 to support the development of the energy efficiency market in Bulgaria. The EERSF manages the financial resources received by Bulgaria from the Global Environment Facility through the International Bank for Reconstruction and Development, as well as from other donors. It is structured as a self-sustaining commercial entity and operates as a revolving fund, reinvesting income from loans and guarantees into new projects. The EERSF provides low-interest loans and loan guarantees to Bulgarian companies, municipalities and individuals for energy efficiency projects. The loan-guarantee mechanism offers both partial credit guarantees for individual projects and portfolio guarantees for energy service companies and residential portfolios.

Source European Commission Recommendation C/2023/1553[30]

30 European Commission Recommendation C/2023/1553, 2023 of 12 December 2023 on the transposition of Article 30 on National Energy Efficiency Funds and financial and technical support, of Directive (EU) 2023/1791 on energy efficiency (recast EED). https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=OJ:C_202301553

6.4. Sustainable bonds for building renovation

Green bonds issued by autonomous communities, national governments or public and development finance institutions can be used to finance a wide range of projects related to energy efficiency in buildings. These may include urban revitalization programs at city, neighborhood or municipal level; district heating and cooling systems; deep renovation of public buildings; improvements to building envelopes such as thermal insulation and high-efficiency windows; installation of renewable energy systems such as solar, geothermal or aerothermal technologies; replacement of outdated equipment with high-efficiency alternatives; and the implementation of energy management systems, including automation to optimize energy consumption.

Sustainable bonds and social bonds also allow investment in assets with social impact, such as social housing projects.

Public entities and development finance institutions can act not only as issuers of green or social bonds but also as catalytic anchor investors in third-party issuers.

Private financial institutions may also pool green and social financial assets into portfolios, securitize them and issue green or sustainable bonds. Securitization frees up regulatory capital and diversifies risk, attracting private investors and increasing their capacity for sustainable financing. This allows institutions to expand lending without taking on additional capital requirements.

These structures have strong potential to attract sustainability-oriented investors, improve liquidity and reduce the cost of capital, thereby supporting the expansion of sustainable finance.

Bond maturities are typically long (7 to 10 years or more), which makes them suitable for renovation projects in social rental housing that require extended investment and payback periods.

Main challenges

- Green, sustainable and social bond issuance frameworks require ex ante and ex post verification, with complex eligibility criteria such as those in the European Green Bond Standard. No harmonized framework exists across ICMA, the Climate Bonds Initiative and the EUGB.
- Complex structures with high transaction costs, including the need to aggregate portfolios to reach sufficient volume. It is difficult to combine renovation projects with other sectors such as sustainable mobility.
- Investors in Spain are highly sensitive to risk-adjusted returns, and the perceived risk of sustainable assets, particularly those related to renovation and refurbishment, is higher than in other countries.
- Strict sustainability eligibility criteria can reduce the number of eligible assets and narrow the investment universe.
- Spain has a limited base of institutional investors interested in sustainable assets due to the relatively small size of institutional funds, including public employment pension funds.
- Limited tax incentives exist for impact investment.

Main proposals

- Develop tax incentives to encourage sustainable impact investment
- Harmonize green, social and sustainable bond issuance standards at international level.
- Include urban revitalization and renovation programs within public administrations' sustainable bond issuance frameworks.
- Provide tax incentives for long-term savings and pension plans to expand the size of public employment pension funds in Spain.
- Strengthen the catalytic role of public investors such as the EIB, ICO and EIF, as well as institutional investors.
- Strengthen alternative capital markets designed for smaller-scale bond issuances, enabling more entities to access capital markets.
- Reinforce national programs that establish Special Purpose Vehicles to aggregate small portfolios from various entities or financial intermediaries for residential renovation lending, and subsequently securitize them, helping scale project aggregation and access to capital markets.
- Structure securitizations tranche-based structures aligned with different risk-return profiles.
- For sustainability-linked bonds, explore the use of KPIs and targets related to decarbonizing renovation-related loan portfolios, or increasing the share of green mortgages or energy-efficiency mortgages

6.5. Retail investment in sustainable finance

CROWDFUNDING

Crowdfunding is an effective tool for financing projects, especially at the community level. It enables a group of individuals to support initiatives that might otherwise lack sufficient financial backing by making small contributions.

In the field of housing and building renovation, crowdfunding can be applied to projects related to sustainability, renewable energy, green infrastructure or real-estate development for social housing.

Main challenges

- Impact crowdfunding should be regulated through a simplified information standard and an attractive tax framework for retail investors.
- These technological platforms sometimes find it difficult to verify or present operational data, for example regarding energy savings or achieved levels of energy efficiency. They may also struggle to comply with the information requirements set out in the sustainable finance framework.
- Projects are sometimes limited in scale.
- These platforms have a shorter track record in Spain than in countries such as France or the Netherlands.

Main proposals

- Develop tax incentives for sustainable impact investment.
- Retail investors in Spain tend to favor the real-estate sector, so platforms focused on sustainable housing development may be particularly attractive.
- Create a publicly accessible database with information on the energy consumption of residential buildings and dwellings, recommended energy-efficiency technologies, building renovation passports and energy performance certificates. Access to this information would help platforms provide reliable information to potential small investors and better assess operational risk.
- Simplify the information requirements for financial intermediaries regarding sustainability and sustainable financial products. Adapt MiFID II to less complex language for retail investors to enable accurate assessment of their suitability profiles and sustainability preferences.

Priority proposals to increase the scalability and reach of financing

07

Priority proposals to increase the scalability and reach of financing

07

- **Ensure continuity of aid within the new National Building Renovation Plan.** Establish the necessary aid to avoid negative and unintended economic impacts on households' assets and wealth when introducing future legal minimum energy efficiency requirements for selling or renting housing. Explore the feasibility of fiscal mechanisms, such as transferable tax credits, to enable soft-loan lines and/or grant schemes.
- **Simplify aid procedures.** Streamline disbursements. Establish sufficient guarantees to allow financial institutions to advance approved subsidies.
- **Coordinated combination of aid** in the form of subsidies, guarantees and low-interest public loans.
- **Strengthen coordination of state, regional and local aid.** These should not compete with each other, as this generates contracting conflicts on the supply side.
- **Develop technical training programs** to ensure an adequate supply of skilled labor for renovation.
- **Improve coordination across ministries** and across departments within public administrations.
- **Promote urban revitalization programs** at regional, city and neighborhood levels. Structure multi-year programs that combine blended-finance mechanisms to attract private sector participation.
- **Develop capacity for Public Private Partnership (PPP) schemes** to combine public and private instruments to finance urban revitalization, social housing, and neighborhood- or district-level urban heating and cooling systems.
- **Revise the Land and Urban Rehabilitation Law** to strengthen the role of national, regional and municipal public administrations in urban revitalization programs. Revise the law to allow borrowing backed by asset guarantees and greater flexibility in the use of public assets.
- **Revise tax regulations** to introduce tax incentives for renovation (income tax, reduced VAT, urban development fees, etc.).
- **Promote long-term property-linked financing schemes** other than mortgages:
  - **Study collateral backed by transferable tax credits** (urban development fee funds, urban charges, energy taxes on fossil fuel consumption).
  - **Regulate, at EU level, appropriate prudential supervision rules** for these collateral arrangements to encourage financial institutions to offer long-term property-linked financing beyond mortgages.
  - **Strengthen the registration** of urban taxes and fees linked to property in the land registry to support the allocation and repayment of costs of national, municipal or neighborhood-level urban regeneration programs.
  - **Allow investment costs to be recovered** through long-term urban taxes or fees without mortgages, while enabling their registration in the land registry.
- **Expand tax incentives** (income tax, reduced VAT, urban fees and charges, etc.) and incentives for impact investment in social housing.
- **Collect market data** to evidence the green premium and ensure its effective inclusion in valuations. Public databases (EPCs, consumption, savings, Building Energy Passport, etc.).

- Make EPCs mandatory.
- Create a national Comprehensive Renovation and Rehabilitation Service Office to strengthen the one-stop shop model (advice, training, grant management, information on financing, etc.).
- Encourage the ECB to review the Prudential Supervision Regulation so that climate-related factors are effectively integrated into capital requirement methodologies.
- Simplify technical criteria and sustainability standards for renovation.
- Implement aid and guarantees for vulnerable groups and homeowners' associations. Public guarantees could be provided through existing public financial institutions, such as public banks or national funds.
- Combine public aid, financing and guarantees with on-bill or tax-based payment schemes, through agreements with energy service companies, energy utilities and financial institutions.
- Allow the pledging of Energy Saving Certificates (CAE) in favor of financial institutions, recognize lifetime savings of measures, and promote the sale of certificate portfolios. Enable a multiplier factor for certificate prices in the residential segment. Incorporate certificates for deep renovations, such as building envelopes.
- Run communication campaigns on the benefits of renovation (energy savings, comfort, quality, etc.).
- Include urban revitalization and social housing programs in sustainable bond issuance frameworks of public administrations.
- Develop tax incentives for impact investment in social housing.
- Strengthen and promote European initiatives supporting Citizen Energy Communities and in municipalities.

Conclusions 08

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The next Spanish National Building Renovation Plan (PNRE) must be approved and submitted to the European Commission in 2026 and must include interim targets to reduce the average primary energy consumption of residential buildings by 16 percent by 2030 and by 20 to 22 percent by 2035.

As established in the EED and the EPBD, Member States must include measures in the new PNRE to develop public and private financing mechanisms that combine grants, guarantees, public financing, technical assistance and a National Energy Efficiency Fund.

Developing these mechanisms is not straightforward and faces major challenges, such as solvency and liquidity constraints among vulnerable groups and the lack of awareness among homeowners and tenants of the benefits of renovation. These benefits extend beyond energy savings and include improvements in comfort and quality of life.

Despite these difficulties, Spain has a stock of energy-inefficient housing with sufficient capacity to absorb additional property-related levies.

This makes it possible to design property-linked financing mechanisms for renovation projects that improve the value, comfort and quality of homes, and that justify longer repayment periods and lower interest rates than consumer loans. Not doing so would mean underusing the financial potential of household wealth, which in Spain is predominantly held in real estate. Such levies do not necessarily need to take the form of mortgages. Enforceable urban development fees or charges could also be considered, allowing deferred repayment schemes that remain attached to the property.

The measures proposed in this report for each financing mechanism or product aim to remove regulatory barriers, address the complexity of financing structures and the difficulty of applying them at national scale, and prevent financial exclusion for buildings in degraded areas or for vulnerable households facing solvency or liquidity constraints. They also seek to address structural problems in the supply of renovation services and construction work, and the lack of coordination in aid processing due to fragmentation across national and regional public administrations.

Some proposals also aim to address the lack of demand from homeowners and homeowners' associations, which often stems from limited awareness of renovation benefits and from insufficient information on the financing mechanisms available.

Implementing these measures will require the allocation and coordination of significant public and private resources, which is a demanding task, but one that is clearly necessary in order to meet Spain's objectives and commitments with the EU.

Appendix. Members of the alinnea working group

Name	Surname	Organization	Position
Agustin	**Villar**	ANESE	Director of Regulation and Training
Alberto	**Marina**	Acciona Construcción	Director of Business Develop-ment
Alberto	**Martinez De Ilarduya**	SUM Ensanche 21 Zabalgunea	Administrative and Financial Manager
Alejandro	**Tosina**	Tosina Solutions (Climate Kick)	Founder
Alvaro	**Colino**	Caixabank	Director of Sustainable Business Product Coordination
Anamaría	**Londoño**	Foro NESI	Urban Planning for Life Area
Andrea	**Gonzalez**	SpainsIf	Managing Director
Anna	**Casas**	Octopus Energy	Director of Flexibility
Ana Belén	**Sánchez**	Alinnea	Director
Andrea	**Gonzalez**	SpainsIf	Managing Director
Anna	**Casas**	Octopus Energy	Director of Flexibility
Cecilia	**Foronda**	ECODES	Director of Action for a Just Eco-logical Transition
Cristina	**Olivera**	Kearney	Head of the Energy Sector
Dolores	**Gonzalez**	Octopus Energy	Director of Institutional Rela-tions and Global Affairs
Emilio	**Giner**	Octopus Energy	Director of Services
Emilio Miguel	**Mitre**	Urban Climate Economy s.l.u.	Director
Francisco J.	**Sanz**	Ibercaja	Head of Sustainable Finance
Gabriel	**Marí**	Andemen Group	Commercial Director
Gemma	**Bedia**	Allinnea	Senior Climate Change Project Manager
Gonzalo	**Sanchez**	European Climate Foundation	Program Director—Politics and Public Policy in Spain
Isabel	**Abellán**	Banco Sabadell	Head of ESG and Sustainable Finance, CIB
Jaime	**Yrazusta**	BBVA	Director of Sustainability in Re-tail Banking
Jeannette	**Bain**	ECODES	Project Manager

Name	Surname	Organization	Position
Jimena	**Munzio**	Green Finance Institute	Associate
Joaquín	**Garralda**	Spainsif	President
Jon	**Macias**	EDISON NEXT	Commercial and Marketing Di-rector
José Ramón	**Murillo**	IMPSOL-AMB (Barcelona)	Head of Management Control and Processes
Luis	**Tejero**	Nuevo Plan Madrid	Director
Luis	**Vega**	MIVAU	Coordinator of the Directorate-General for Housing and Land
Macarena	**Ruiz-Quintana**	BBVA	Head of Energy and Sustainability
Mai	**Wang**	Ezplus	Executive Director
Manuel	**Yébenes**	CECABANK	CSR (Corporate Social Respon-sibility) Coordinator
María	**Molina**	SpainNAB	Director of Partnerships and Im-pact Ecosystem
Marta	**Góngora**	Caixabank	Sustainable Product Develop-ment Coordinator
Mauricio	**Yrivarren**	Climate Strategy & Partners	Senior Research Associate
Miguel	**Fernandez**	CBRE	ESG Director and BREEAM Asses-sor
Miguel	**Pinto**	Cluster de la Edificación	Managing Director
Nacho	**de la Puerta**	Arquitecto/ ClimateKic	Consultant
Patricia	**Pascau**	Alinnea	Specialist in Strategic Communication
Pablo	**Fergusson**	CBRE	Associate Director of ESG and Sustainability
Paloma	**Menendez**	Savills	ESG Project Manager
Paula	**Ordoñez**	Savills	ESG Manager
Sara	**Casas**	Cruz Roja	Environment Manager
Sara	**Candela**	Alinnea	Junior Manager
Sergio	**Roldan**	Caja Rural de Navarra	Authorised Company Repre-sentative
Shengying	**Liu**	Andemen Group	Chief Executive Officer (CEO)
Silvia	**Soler**	Caixabank	
Sonia	**Del Portillo**	Repsol	Senior Regulatory Coordination Analyst
Susana	**Martín**	REVO Prosperidad Sostenible	Head of Public Policy
Teresa	**Alejos**	A3E Asociación de Empresas de Eficiencia Energética	Director of Communications and Marketing
Verónica	**Rodríguez**	ASUFIN	Head of Media Relations

This report proposes measures to boost financing for building renovation for the decarbonisation of housing, addressing regulatory barriers, the lack of energy data and financial complexity, and facilitating implementation at national scale.

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