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ANNEX

ANNEX

to the

COMMISSION RECOMMENDATION

on unlocking private investment in energy efficiency

ANNEX

1. INTRODUCTION

The present Annex to the Commission Recommendation on unlocking private investment in energy efficiency (the Recommendation) provides details on specific policy and financing measures for mobilising private investments in energy efficiency. It identifies key steps and provides examples of successful cases with the aim of supporting Member States in the establishment of concrete actions and financing schemes.

These measures are structured in two sections according to the two interconnected drivers to unlock private investments:

(1) activate and aggregate demand for energy efficiency investments;

(2) improve supply of financing offers for energy efficiency, de-risk investments and re-financing opportunities.

The first section relates to recommendations 2 to 6 of the main text, while the second section relates to recommendations 7 to 12. The **first recommendation** on establishing a long-term public financing support framework for energy efficiency is a pre-requisite for the development of additional actions able to further mobilise private investment and, overall, the energy efficiency business case.

Given the existing regulatory and governance differences between Member States and their differing financing practices for energy efficiency and the development of private financing offers for energy efficiency, the recommendations in this Annex will need to be tailored to the specific national and regional energy efficiency and governance framework of each Member State.

To develop the Recommendation, and as part of the related joint report on energy efficiency financing in Europe – an evaluation of public spending for energy efficiency, the Commission, with the support of national authorities, identified, and assessed more than 400 public financing schemes supporting energy efficiency investments across the 27 EU Member States, including schemes co-funded by the EU[1]. According to the joint report, Member States predominantly use non-repayable forms of financing schemes to support energy efficiency. Alternative solutions focusing on repayable forms of financing schemes able to better attract private investment are less common. The joint report notes that the annual investment needed to achieve the 2030 energy efficiency targets is EUR 370 billion per year for the 2021-2030 period and that the projected investment gap to achieve the energy efficiency targets amounts to around EUR 170 billion per year. This has to be related to the EU budgetary resources for energy efficiency have increased by 491% in the 2021-2027 Multi-Annual Financial Framework compared to the 2014-2020 period, that is to say from EUR 26,5 to 156,6 billion where a large majority of this increase comes from the recovery and resilience facility ('RRF'). The report concludes that EU and national public budget resources for energy efficiency are fundamental but can only cover a limited share (14.4%) of the investment gap. Therefore, the catalytic effect of public funding should be exploited to the fullest, by increasing its effectiveness and efficiency in order to achieve higher energy savings and attract further private capital.

[1] Report from the Commission to the European Parliament and the Council on Energy Efficiency financing in Europe: An assessment of public spending for energy efficiency and the energy performance of building COM(2026)118.

2. ACTIVATE AND AGGREGATE DEMAND FOR ENERGY EFFICIENCY INVESTMENTS

Activating and aggregating investment demand is the key stepping-stone to mobilising private financing for energy efficiency investments. Developing robust investment pipelines and stimulating demand for energy efficiency is therefore needed to increase the attractiveness of such instruments to private investors. EU Member States have a key role to play in activating and aggregating demand for investments in energy efficiency. The below chapter relates to recommendations 2 to 6 of the main text.

2.1. Recommendation 2: Establish or strengthen the National energy efficiency fund or equivalent facilities

Aggregating different financing streams and technical and financial assistance into a National energy efficiency fund (NEEF), or equivalent facility, such as National promotional banks, is key to supporting the implementation of energy efficiency measures and to delivering on Member States' contributions to the 2030 EU energy efficiency targets. Such a fund can help to enhance national coordination and centralised funding support, to pool expertise on energy efficiency financing, and facilitate the blending of different financing schemes and sources of public financial support and better aggregate the investment pipelines, by aligning rules on eligibility, monitoring and verification.

The role of the National energy efficiency fund in contributing to the EU energy efficiency targets is established in Article 30 of the recast Energy Efficiency Directive (EED)[2]. Article 30 EED also provides for the option of fulfilling some of the energy efficiency requirements through a financial contribution to the national energy efficiency fund[3].

As of 2024, 16 out of 27 Member States had a national energy efficiency fund or a similar entity[4] in place. However, these national funding facilities vary greatly in terms of financing volume and type of funding support provided, with many appearing dormant or under-exploited.

Establishing or relaunching a National energy efficiency fund, or similar, is a key step towards improving the national financing framework and unlocking private investment in energy efficiency. Such a dedicated entity can enhance coordination and aggregation of financing instruments and mechanisms, by pooling public resources and deploying blended financing solutions, leveraging the combination of grants and loans for specific investments. Moreover, by aggregating technical and financial expertise, such a fund can provide technical assistance support for large-scale energy efficiency projects and pilot innovative financing solutions for energy efficiency.

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[2] A National energy efficiency fund (NEEF), as established in Article 30(12) EED recast, is defined as the entity supporting the national implementation of energy efficiency measures and delivering the achievement of the national contribution to the 2030 EU energy efficiency targets.

[3] For further information on how Member States can make use of the financial contribution option, please refer to the Commission Recommendation of 12 December 2023 on transposing Article 30 on national energy efficiency funds, financing and technical support of Directive (EU) 2023/1791 on energy efficiency (C/2023/1553), which provides further details on policy options for setting up national energy efficiency funds and on the options of a financial contribution to the national energy efficiency fund to achieve part of the energy efficiency obligations. OJ C, C/2023/1553, 19.12.2023, ELI: http://data.europa.eu/eli/C/2023/1553/oj.

[4] The 16 Member States having established a National energy efficiency fund or similar entity are Bulgaria, Czechia, Germany, Spain, Croatia, Italy, Ireland, Cyprus, Latvia, Lithuania, Malta, Netherlands, Portugal, Romania, Slovakia, Slovenia.

One key barrier to deploying blended financing for energy efficiency is the lack of coordination between grant programmes and financial instruments such as favourable loans, public guarantees or other de-risking solutions. Grants often crowd out other financial instruments, specifically when the lines between non-repayable and repayable supporting mechanisms are not clearly demarcated. Pooling resources and expertise into one, new or already existing, entity at national level, can enable better coordination between different financing streams, including by aligning rules and procedures for assessing the eligibility of measures, for monitoring and for verification of the energy savings achieved. In many cases, improving and simplifying the national support frameworks for energy efficiency investments can reduce transaction costs, increase transparency and provide long-term visibility for industry stakeholders and financial institutions in the national energy efficiency market, making the energy efficiency business case more attractive.

In addition, pooling energy efficiency financing expertise into a national energy efficiency fund can increase coordination in data collection on energy efficiency investments and cooperation with private financial institutions. It can also provide targeted feedback to national and European policymakers on stepping-up energy efficiency investments. The coordination and intelligence gathering role of the National energy efficiency fund goes hand in hand with promoting national-level partnerships between public authorities, financial institutions and the energy efficiency industry to better coordinate public incentives and support schemes with private financing solutions. Such partnerships can also take place in the context of the national hubs established within the European Energy Efficiency Financing Coalition[5].

Against this background, the key actions to support the aggregation of energy efficiency funding streams and financing expertise are:

- **Assess the state of the energy efficiency financing schemes** in the country, to establish if increased aggregation of financing resources and coordination of public financing support can reduce transaction costs, while increasing the attractiveness and visibility of energy efficiency investments for private investors.

- **Establish a national energy efficiency fund or similar entity or strengthen the existing one**. The fund should be given a clear mandate to mobilise energy efficiency financing across various sectors, including for renovation of existing housing stock and repurposing of buildings into energy efficient housing projects. This can be achieved by creating a dedicated structure with a specific mandate to mobilise investments in energy efficiency, within or outside existing bodies promoting capital investments, for the management of EU and national public financing support for energy efficiency. Member States should ensure that the structure is staffed with the necessary expertise to effectively achieve its mandate.

- **Determine the capitalisation of the national energy efficiency fund,** entrusting it with the financing of long-term national energy efficiency programmes; the development of blended financing solutions; and the provision of technical assistance for energy efficiency financing. The fund can be capitalised through various means,

[5] The European Energy Efficiency Financing Coalition is a Commission initiative, bringing together EU countries, financial institutions and relevant stakeholders, to identify actions to concretely improve private financing for energy efficiency. For more information: https://energy.ec.europa.eu/topics/energy-efficiency/financing/european-energy-efficiency-financing-coalition_en.

including through public budget and EU/national public support programmes; receivables from its long-term financial instruments for energy efficiency; revenues from auctions of energy savings certificates under national energy efficiency obligations schemes (EEOS); emission allowances under the EU emission trading system; trading of White Certificates; or leveraging private funding in capital markets, such as transferring energy savings receivables to institutional investors active in the secondary market.

- **Raise the role of the national energy efficiency fund or similar entity** in providing technical assistance for large-scale investment projects; collecting data; assessing the development of the energy efficiency market and investments; and providing expert advice on financial instruments, innovative financing solutions and policy, including through the national hubs of the European Energy Efficiency Financing Coalition.

Successful examples of national energy efficiency funds include ALTUM[6] in Latvia, which aggregates energy efficiency funding support and expertise within an existing national facility, and the Spanish National Energy Efficiency Fund[7], which has been established to deliver on national energy saving obligations whilst expanding their activities.

2.2. Recommendation 3: Scale-up long-term financial instruments and blended financing solutions

As part of the report on energy efficiency financing in Europe, the Commission surveyed the level of energy efficiency financing across the EU-27 Member States, and assessed existing energy efficiency financing schemes, both EU and nationally funded. Out of 426 energy efficiency financing schemes identified across the EU-27 Member States in the 2014-2024 period, only 25% deployed financial instruments, including blended financing support combining grants and loans into a single operation. The remaining 75% were non-repayable schemes such as grants and tax credits. Only in a handful of Member States did financial instruments and blended financing solutions represent more than 30% of the public funding support for energy efficiency.

While grants-based schemes, tax credits and other forms of non-repayable subsidies do not necessarily prevent mobilisation of private investments, they often have lower leverage

[6] ALTUM, a Latvia state-owned company, provides companies and households with access to financial resources through loans, guarantees and investments in venture capital funds. The funding for implementation of state support programmes comprises both EU funds and national public funding as well as funding raised by ALTUM from international institutions and capital markets. ALTUM plays a crucial role in supporting energy efficiency investments, as it aggregates funding support for private individuals and enterprises, addressing both energy efficiency in buildings and in industry, with a combined support made up of grants programmes, favourable loans, public guarantees and technical assistance. For more information: https://www.altum.lv/en/.

[7] The Spanish National Energy Efficiency Fund (FNEE) finances national energy efficiency initiatives, in compliance with Article 30 EED. Established in 2014, the FNEE is managed by the Institute for Energy Diversification and Saving (IDAE) on behalf of the Ministry for Ecological Transition and the Demographic Challenge. The FNEE provides economic and financial support, technical assistance, training and information with the goal of increasing energy efficiency in various sectors and their contribution to the national energy saving target under Article 8 EED. The FNEE is part of the Spanish National Energy Efficiency Obligation System under which obligated parties (gas and electricity marketing companies, wholesale petroleum product operators and wholesale liquefied petroleum gas operators) are assigned annual national energy savings obligations. To meet these obligations, obligated parties must make a minimum annual financial contribution to the FNEE. The remainder of the obligations can be met through the voluntary acquisition of energy savings certificates or through additional financial contribution to the fund. For more information: https://www.idae.es/ayudas-y-financiacion/fondo-nacional-de-eficiencia-energetica.

factors and higher grant intensity rates compared to financial instruments and blended financing solutions. This can lead to private capital being crowded out of energy efficiency funding. Moreover, grants and subsidies programmes that rely heavily on Member States' fiscal capacity and EU-budget contributions can result in a 'stop-and-go' approach, hindering the development of a thriving energy efficiency market. In addition, compared to financial instruments and blended financing solutions, grant-based programmes and tax credits do not leverage capital markets and private investors' participation, but often rely exclusively on private co-financing from the own resources and savings of the grants' beneficiaries. Paradoxically, the non-repayable form of financing creates a barrier to access for those who lack sufficient own resources to cover the required co-financing, or, in the case of tax credits schemes, do not have sufficiently high taxable incomes to benefit from the scheme. This can have regressive fiscal policy impacts, where access to public subsidies increases with taxable income.

At the same time, energy efficiency investments are often hindered by high risk and difficult access to finance. This can happen for certain market segments, such as low-income households, multi-apartment buildings or SMEs, or with more ambitious energy savings investments or deployment of new technologies. Using grants support in combination with loans, together with other de-risking measures, such as public guarantees, can reduce the associated risks.

Therefore, to attract more private capital to energy efficiency while ensuring wide access to long-term financial support, Member States should **deploy financial instruments at scale, particularly large-scale blended financing schemes that combine grants and financial instruments, including loans and public guarantees**. This can be achieved by establishing long-term national financial instruments for energy efficiency to provide long-term financing opportunities, including by implementing revolving funds and adjusting grants support to meet the needs of targeted beneficiaries.

Establishing long-term financial instruments at scale will also allow for collaboration with market actors - financial institutions, energy service companies, third-party financing and project developers - providing a stable and long-term outlook for maximising the combination of public and private contributions. These instruments should be available for different sectors and can work as revolving funds, regularly refinanced through public funds.

These instruments should be also combined with dedicated technical assistance support, in order to develop specific energy efficiency financial vehicles, leveraging the participation of private financial institutions and energy service companies (ESCOs), and innovative financing solutions, such as energy performance contracting and energy efficiency as a service.

To effectively scale up financial instruments for energy efficiency, repayable and favourable loans and public guarantees should be combined with dedicated grants support, tailored to specific criteria, such as the scope of the energy efficiency improvement, the targeted population segment, or the type of asset addressed (e.g. worst-performing buildings and multi-apartment building renovations). The priority should be to establish combined financing solutions that leverage public grants to ensure access to funding and de-risk more ambitious investments. National energy efficiency funds or similar entities are well-placed to deploy such long-term financial instruments, combining loans or guarantees with grant components into a single energy efficiency operation.

For example, within the cohesion policy funds, the Commission and the European Investment Bank's (EIB) FI-Compass advisory service platform[8] have developed a proven model for an energy efficiency financial instrument with a grant component, where the body implementing financial instrument delivers both the loan and grant component of the financial instrument.

One key added value of financial instruments combining loans, guarantees, grants, and technical assistance, is their revolving fund potential and long-term perspective. Scaling up the use of such financial instruments provides stability and predictability, which support the development of a thriving energy efficiency market. It enables the financial authority managing the financial instruments to re-invest the repayable amount –minus the grants support and other de-risking measures – into new energy efficiency investments. Although the public fund providing resources to the financial instruments will require periodic recapitalisation, it can continuously re-invest in new energy efficiency measures, making revolving funds a promising model for mobilising private investments.

Against this background, the key actions to support the deployment of financial instruments and blended financing solutions for energy efficiency are:

Considerably scale up the use of public financial instruments to fund energy efficiency investments as part of the national financing framework and within the national energy efficiency fund, or equivalent facility, to provide a long-term investment perspective to the national energy efficiency value chain and potential beneficiaries.

Establish blended financing solutions combining loans, public guarantees and grants support into one operation. Reduce barriers to access financing support for energy efficiency, either by establishing financial instruments with a grant component, or by enabling the combination of different financing streams providing loans, public guarantees and grant support to the same energy efficiency investment.

Adjust the combined grants support to reduce risk and barriers to access to finance based on factors such as the level of household income, the value of the targeted assets or the size of the investment. For instance, the combined grants support can be increased for investments aimed at low-income and vulnerable households, worst-performing buildings, micro-enterprises and SMEs, or investments aimed at deep energy renovations of worst-performing buildings or large-scale energy efficiency investment programmes leading to significant energy savings.

Leverage the revolving-funds nature of energy efficiency financial instruments with a combined grants component. Provide an initial public capital injection and enable the funding authority to re-invest repayments into further energy efficiency measures at low-to-zero further costs to the public budget, by providing the funding facility with a long-term perspective.

Support the development of specific energy efficiency financial vehicles, leveraging the cooperation between the ESCO market, financial institutions and large assets owners, such as public authorities, public companies, including public housing providers, and large real estate companies.

Review the existing national financing framework and enable grants, loans and public guarantees from different streams of financing to be combined into one single energy

[8] FI-compass model for an Energy Efficiency Financial Instrument with a grant component (May 2022): https://www.fi-compass.eu/library/how-to/model-financial-instrument-grant-component-support-energy-efficiency.

efficiency investment. This will remove existing barriers to financing, such as the existence of different rules on eligibility and payments and limited internal coordination in deploying energy efficiency financing support programmes.

Maximise the use of EU-budget funds and programmes to deploy financial instruments at scale. Consider the use of the Social Climate Fund and the national revenues from the EU Emissions Trading System (both the existing ETS1 and the forthcoming ETS2) for this.

2.3. Recommendation 4: Deploy project development assistance facilities and support the development of 'aggregators' of energy efficiency projects

A key barrier to attracting private capital investment in energy efficiency is the often limited attractiveness of the investment pipeline. The relatively small volume and fragmented nature of energy efficiency investments make them more complex and less attractive for private investors compared to other investments.

To leverage further private capital investments, it is essential to address the investment demand and improve the quality of the energy efficiency investment pipeline. Member States should support the deployment of (i) technical assistance for the design of financial instruments that aggregate small-scale energy efficiency projects and energy renovations and (ii) dedicated project development assistance to assist assets owners, local authorities, public companies, commercial real estate and enterprises in designing large-scale investment projects.

Centralising technical assistance support has significant potential to aggregate energy efficiency investments and standardise the collection of specific data on their energy and financial performance. This can make energy efficiency projects more attractive for private investors, and would also incentivise re-financing and securitisation in the secondary market.

The reputation of project development and technical assistance facilities plays a key role in attracting private capital, helping private investors feel more confident about the creditworthiness of energy efficiency investments. Those facilities, in combination with advisory one-stop-shops, can act as energy efficiency investment ambassadors on the ground, addressing the root causes of low investment demand. They can engage with public authorities and local enterprises to advocate for financing of energy efficiency investments and the blending of different financing streams into specific investments. They can also help to overcome the perceived investment risks by private investors in co-financing energy efficiency projects thanks to the confidence and reputation provided by the technical assistance facility involved in the project preparation. At national level, specialised energy efficiency financing entities, such as national energy efficiency funds or similar, can play an important role in raising the credit rating of investment projects, increasing investor confidence and attracting cross-border and specialised investors.

The key role of technical assistance and project development assistance facilities is also mentioned in Article 30(2) EED recast, which requires the Commission to assist Member States in establishing project development assistance facilities able to scale up the energy efficiency investment pipeline and increase private investors' confidence in and attractiveness of energy efficiency investments. The Commission provides such support via:

the European Local Energy Assistance (ELENA) facility[9] implemented by the EIB on the Commission's behalf, which includes support to Member States to **set up their technical assistance facilities at national and regional level, based on the ELENA model**;

the LIFE Clean Energy Transition sub-programme, which provides technical project development assistance (PDA) to public and private project developers to build technical, economic and legal expertise for launching sustainable large-scale energy investment pipelines.

the Cohesion for Transitions (C4T)[10] provides expert support to EU Member States, regions and local authorities, helping them with the implementation of Cohesion Policy investments under Policy Objective 2 (PO2), including those focusing on energy efficiency. Support services include developing strategies, improving monitoring, engaging stakeholders, identifying funding opportunities, supporting call preparation and building capacity.
Fi-compass platform[11] Offers technical assistance to managing authorities, helping them conduct feasibility studies, ex-ante assessments, case studies and other preparatory work necessary to establish FIs.
The InvestEU Advisory Hub[12] **and initiatives like JASPERS**[13] provide technical assistance to (public and private) project promoters, helping them develop bankable renovation projects.

Similarly, **one-stop shops for home renovations and energy efficiency in SMEs can play a crucial role in scaling up energy efficiency investment demand**. They provide technical, administrative and financial advice to individuals and enterprises, helping them develop energy efficiency investment projects, particularly energy renovations. Article 22(6) EED recast and Article 18(1) EPBD recast require Member States to establish one-stop shops to support final customers and final users, especially households, public bodies, SMEs and micro-enterprises with energy efficiency and building renovations projects. To support Member States in this regard, the Commission is issuing a recommendation with practical guidance on the establishment and operation of one-stop shops[14].

Against this background, the key actions to promote the use of project development assistance to activate the investment pipeline are:

- **Establish national technical assistance and project development assistance facilities or mobilise existing ones** to support the development of energy efficiency investments, improve the investment pipeline and increase capital markets' confidence in energy efficiency. Member States can establish such facilities in their NEEFs or similar entities, to develop large-scale energy efficiency investments and financial instruments and/or specialised financial vehicles aggregating a large number of small-scale energy efficiency investments, such as for energy renovations in buildings.

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9 ELENA provides grants for the preparation of energy saving investment programmes. It provides up to 90% of preparation costs. Grants are typically in the range of EUR 1 to3 million and are aimed at supporting the team which prepares the investment. Support includes project management, feasibility studies, technical studies / energy audits, legal support at project level, preparing of tendering procedures, aggregating, applying for grants and financing and any other preparation activities.

10 Inforegio - Apply for C4T GROUNDWORK – technical assistance for Cohesion Policy investments

11 fi-compass | Financial instruments under EU shared management

12 Invest EU Advisory Hub - Home page

13 JASPERS - Joint Assistance to Support Projects in European Regions

14 Commission Recommendation with practical guidance on one-stop shops services for energy efficiency and the energy performance of buildings C(2026)1523 .

- **Make use of the Commission Recommendation with practical guidance on the establishment and operation of one-stop-shops - advisory and assistance services for home renovations, micro-enterprises and SMEs**, to ensure continuous support and specialised assistance to citizens and businesses for developing and implementing energy efficiency projects.

- **Maximise the use of EU-level support, for instance via the ELENA facility[15] and the LIFE CET sub-programme**, to establish national technical assistance facilities, support project development assistance, and develop energy efficiency financing schemes aggregating multiple small-scale projects.

2.4. Recommendation 5: Participate pro-actively into the European Energy Efficiency Financing Coalition to promote a closer and effective cooperation with financial institutions

Limited coordination across the energy efficiency financing value chain between public authorities, financial institutions, ESCOs and energy efficiency technology providers is a key barrier to mobilising private investments for energy efficiency. In recent years, the Commission supported various initiatives to bridge this coordination gap, including as part of the Sustainable Energy Investment Forum and the Horizon 2020 and the LIFE-Clean Energy Transition (CET) programmes, which funded national financing roundtable projects.

To pool together these efforts and provide a common framework for cooperation, the European Commission has established the **European Energy Efficiency Financing Coalition**[16]. The Coalition aims to foster a favourable market environment that scales up energy efficiency investments, mobilises private financing and engages financial institutions. It coordinates with financial institutions and other market participants to make effective use of EU and national budget resources, facilitating the implementation of energy efficiency financial instruments and acting as a catalyst to mobilise private investment. The Coalition adopted the work programme for 2025 at its first general assembly on 20 May 2025[17].

National hubs to be established in the Member States will represent the operational arm of the Coalition. The objectives and activities of these hubs will be set by the national authorities. The goal is to create synergies between national financing practices and the energy efficiency and energy services industry to improve energy efficiency financing practices and crowd in private investments.

Currently, energy efficiency is often overlooked as a specific priority and treated as part of the broader concept of sustainable finance. The opportunity to invest in many potential energy

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15 For example, the ELENA projects GROWS and BOS4EE. See https://www.eib.org/files/elena/76-project-factsheet-green-revolution-of-wealth-in-salento-grows.pdf and https://www.eib.org/files/elena/135-project-factsheet-bos4ee.pdf.

16 The European Energy Efficiency Coalition was established by a joint declaration between the Commission and Member States in December 2023. The Coalition builds upon the results of the Energy Efficiency Financial Institutions Group (EEFIG) created in 2013. For further information: https://energy.ec.europa.eu/topics/energy-efficiency/financing/european-energy-efficiency-financing-coalition_en.

17 European Energy Efficiency Coalition, Scope of Action and Mandate, Work Programme for the first year of activities. Accessible at: https://energy.ec.europa.eu/topics/energy-efficiency/financing/european-energy-efficiency-financing-coalition_en.

saving projects is often missed due to the lack of transparency in financial institutions, corporate communication and due diligence processes. Regulatory frameworks like the EU Taxonomy have made sustainability one of their goals, but the financing and investment sector is held back by low demand, project complexity and lack of standardisation in the area of energy efficiency.

The goal of the Coalition is to strengthen cooperation with financial institutions to prioritise energy efficiency investments. The cooperation should focus on removing regulatory and financial barriers to boost private investment in energy efficiency. It should also encourage financial institutions to offer tailored financial products, such as energy efficiency mortgages and renovation loans, that highlight the benefits of energy savings.

Commercial banks can benefit from playing a more prominent role in the energy efficiency market, ensuring access to widely available and non-discriminatory energy efficiency lending products that take into account the energy savings potential when assessing the credit risk. By leveraging their relationships with private customers, banks can expand their energy efficiency offerings. Some banks have already set up energy efficiency credit lines, often with support from institutions like the EIB, EBRD or national promotional banks. However, greater engagement from financial institutions is needed to mitigate perceived risks and reduce transaction costs. This can be achieved by developing in-house expertise, creating dedicated products that consider energy savings benefits, and standardising project appraisals and loan processes to better serve the energy efficiency market.

Public authorities at both EU level and within several Member States provide guarantee instruments, public-backed credit lines, and technical assistance to help commercial banks reduce transaction costs, de-risk energy efficiency investments, and support the aggregation of smaller projects for financing through green bonds.

Against this background, the key actions to promote close cooperation between national authorities and financial institutions on energy efficiency financing are:

Actively participate in the European Energy Efficiency Financing Coalition and encourage national hubs to identify specific actions that promote energy efficiency financing solutions and strategies for unlocking private investments.

Collaborate to improve the EU framework for energy efficiency financing, including by (i) enhancing EU and national programmes and financial instruments to better support the scaling up of private investments and (ii) improving the financial regulatory framework to encourage financial institutions to invest in energy efficiency.

Establish partnerships to help commercial banks better leverage the financial co-benefits of energy efficiency investments, such as energy cost savings and increased asset values, as part of credit risk assessments. This includes providing dedicated technical assistance for financial institutions managing publicly backed financial instruments for energy efficiency.

Support and solicit financial institutions in offering customer-friendly financing options for energy efficiency projects, utilising available public financing support, and ensuring broad, non-discriminatory access to energy efficiency lending products.

2.5. Recommendation 6: Make the best use of fiscal incentives to mobilise private investments in energy efficiency

Climate and energy fiscal tools, such as energy saving obligations, carbon taxes and vehicle taxes, if carefully designed, can support national energy efficiency financing strategies, trigger behavioural change and incentivise energy transition and energy efficiency investments.

The tax system and fiscal incentives can play a key role to encourage energy efficiency investments by establishing fiscal rewards and penalties. Taxes and beneficial tax incentives are increasingly used to support the green and energy transition, but striking a balance between their effectiveness and wider political implications remains a challenge. Harmful fiscal incentives and tax measures can negatively impact investment in energy efficiency, such as by locking-in fossil fuels-based and energy inefficient technologies, disincentivising reduction in energy consumption, or removing economic co-benefits of energy efficiency improvements.

Common tax incentives for energy efficiency include tax breaks (reducing the taxable income) or tax credits (reducing the due fiscal charges) on income, or corporate tax for individuals or companies investing in energy efficiency improvements or acquiring efficient energy technology. While tax breaks and tax credits are beneficial for the corporate sector, they may be less attractive for private citizens, particularly low-income citizens, as their tax obligations may be too low to meaningfully benefit from such fiscal incentives.

Against this background, the key actions to make the best use of fiscal incentives to mobilise investments in energy efficiency are:

- **Increase the use of fiscal tools in incentivising the energy transition and energy efficiency**, leveraging national budgetary and fiscal responsibility to establish an enabling environment for energy efficiency investments.

- **Remove fiscal measures and subsidies that disincentivise investments in energy efficiency improvements**, such as those that lock-in fossil fuels-based and energy inefficient technologies or disincentivise with higher fiscal charges the economic co-benefits of energy efficiency improvements.

- **Introduce positive fiscal incentives and tax measures to mobilise energy efficiency investments**, in particular to support energy efficiency investments in the corporate sector and manufacturing industry through tax breaks and tax credits.

3. IMPROVE SUPPLY OF FINANCING OFFERS FOR ENERGY EFFICIENCY, DE-RISK INVESTMENTS AND RE-FINANCING OPPORTUNITIES

To mobilise private capital in energy efficiency investments, it is crucial to make private financing offers for energy efficiency more attractive to citizens and enterprises. In addition, to increase the attractiveness of private capital investments in energy efficiency, it is key to address the excessive market fragmentation and low standardisation of investment projects and improve investment pipeline and portfolio aggregation to increase opportunities for scalability and replicability. Member States' authorities can play a key role in stimulating the market to develop and deploy a wide range of private energy efficiency financing products and services, making it more economically attractive and less burdensome for citizens and enterprises to invest in energy efficiency. With the exclusion of own resources/savings,

energy efficiency can be financed with private capital by either credit agreements – secured or unsecured loans– or by service agreements and third-party financing – notably energy efficiency services and leasing of energy equipment.

Maximising private financing mobilisation in energy efficiency also requires increasing the opportunities for financial institutions and third-party investors to invest capital resources in energy efficiency, and making it possible for citizens and enterprises to fulfil the necessary prudential requirements to access private financing to fund their projects. This can be achieved by reducing the risk associated with energy efficiency investments, by increasing citizens' and enterprises' borrowing capacity, and by improving re-financing conditions for energy efficiency investors. The below chapter relates to recommendations 7 to 12 of the main text.

3.1. Recommendation 7: Promote the development and uptake of dedicated energy efficiency lending products and private financing via credit agreements

To scale up private capital mobilisation in energy efficiency investments, it is essential for Member States authorities to support financial institutions in developing the market and promoting the uptake of dedicated energy efficiency lending products. Article 30(3) EED recast requires **Member States to adopt measures to promote energy efficiency lending products, such as green mortgages and green loans, and ensure that these are offered widely and in a non-discriminatory manner by financial institutions and are visible and accessible to consumers**[18].

Energy efficiency lending products are loans that cover the upfront investment cost of energy efficiency measures, helping to overcome the barrier of limited financing resources. These products include standard loans for energy efficiency measures, energy efficiency mortgages, green consumer credits, and renovation loans. They can be combined with public incentives to co-finance the investments, reduce interest rates and increase the credit rating for borrowers.

Energy efficiency loans can be delivered through (1) credit lines offered by banks or other financing institutions for financing energy efficiency measures, and (2) dedicated funds with a specific mandate to invest in energy efficiency measures, often focusing on specific sectors e.g. buildings or industry. In the EU, several commercial banks offer green consumer credit and green mortgages and have strategies and targets for selected green lending portfolios. However, according to the European Banking Authority, green loans currently account for only a small share of credit institutions' overall balance sheets, averaging 4.5% of total loans[19]. The share of green loans is slightly higher in household portfolios (11%) and lower in non-retail SME and NFC[20] segments (around 2%). Credit institutions use several options to define green loans, including internal standards, the EU Taxonomy, the Loan Market

[18] For further information on Article 30(3) EED requirements please consult Commission Recommendation of 12 December 2023 on transposing Article 30 on national energy efficiency funds, financing and technical support of the Directive (EU) 2023/1791 on energy efficiency (EED recast), C/2023/8558 OJ C, C/2023/1553, 19.12.2023, ELI: http://data.europa.eu/eli/C/2023/1553/oj .

[19] EBA Report: In response to the call for advice from the EC on Green loans and mortgages (December 2023). For further information, please consult EBA Report: https://www.eba.europa.eu/sites/default/files/2023-12/e7bcc22e-7fc2-4ca9-b50d-b6e922f99513/EBA%20report%20on%20green%20loans%20and%20mortgages_0.pdf.

[20] Non-financial corporate.

Association's Green Loan Principles, and the Energy Efficiency Mortgage Label developed by the Energy Efficient Mortgage Initiative[21].

EU Member States should identify and **use best practices and lessons learnt** from energy efficiency financing schemes targeting buildings and scale them up. The most successful programmes in the EU[22] have built upon existing mortgage schemes and combined these with strong tax incentives or grants for energy efficiency upgrades. These schemes are accessible to building owners who are already planning to invest, and ensure that their investment decision includes energy efficiency improvements.

Against this background, the key actions to promote the uptake of energy efficiency loans are:

- **Support financial institutions in developing energy efficiency lending products, scaling up dedicated private financing for energy efficiency.** This can be achieved by leveraging organisational structures to provide additional services e.g. advisory and auxiliary services to support the requirements and opportunities associated with green loans for energy efficiency[23]. In addition, support should be provided to financial institutions in extending the scope of their lending products e.g. through de-risking tools like loan guarantees, project development support and awareness/information campaigns.

- **Establish facilities for public green loans or strengthen existing ones.** Public green loans are offered by public institutions (or indirectly sponsored by them) to households, businesses and tenants to cover the upfront cost of energy efficiency measures. They are usually 'soft loans' i.e. they have favourable, lower-to-zero, interest rates or payback periods. Public green loans can be provided by national energy efficiency funds or similar entities promoting capital investment in energy efficiency.

- **Provide customer-friendly financing and lending solutions for energy efficiency, by transposing and complementing the EED Article 30 recast provisions in the national legislative framework.** Financial institutions should assess the interest of their clients in improving the energy efficiency of their assets and/or in acquiring energy efficiency equipment to be able to offer them dedicated energy efficiency lending products that meet their interests. Financial institutions are encouraged to provide their customers with information about energy efficiency products and the multiple benefits of energy renovation, in addition to information about the expected savings on the energy bill.

- **Enable co-ownership associations to take on loans jointly to finance energy efficiency investments and simplify co-ownership management practices in multi-apartment buildings** to facilitate investments in energy efficiency. This can be achieved, for example, by (i) removing the unanimity rule for concluding loans for energy renovations or by (ii) engaging with real estate management companies to promote energy efficiency improvements and energy performance contracts to co-owners[24].

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21 https://energyefficientmortgages.eu/ Horizon2020 and LIFE CET funded projects.

22 EEFIG (2021), The evolution of financing practices for energy efficiency in buildings, SME's and in industry.

23 Examples of green loans from Belgium, Estonia, Germany and Greece can be found in the EBA report (December 2023).

24 See, for example: the Syndicat National des Propriétaires et Copropriétaires (the National Union of Owners and Co-Owners) and Engie Electrabel 'La copropriété, ses travaux et leur financement'.

- **Provide technical assistance and advice to financing institutions** to develop in-house project development units, establish one-stop shop support for clients, offer energy audit for clients (SMEs, residential), build capacity of loan officers to develop a sales force for energy efficiency products.

3.2. Recommendation 8: Enable the necessary regulatory framework and support innovative financing schemes, such as on-tax financing and on-bill financing

Property-based financing schemes, such as on-tax and on-bill financing, offer numerous advantages in facilitating investments in energy efficiency and attracting private capital. Their advantage is twofold: they use alternative repayment channels such as energy bills and property taxes to reduce the transaction costs associated with loans for energy efficiency improvements; and they separate financing from ownership, addressing the challenge of long-term investment returns.

This approach can help overcome the barrier of limited financial resources, particularly for households and low-income SMEs, by addressing the issues of limited short-term financial returns and extended payback periods for energy efficiency improvements. Although some pilot on-tax and on-bill financing schemes have been developed across EU Member States, the necessary regulatory framework is often lacking. **Article 30(3) EED recast requires Member States to adopt measures to facilitate the implementation of on-bill**[25] **and on-tax financing schemes in their national frameworks**.

On-bill financing schemes can offer attractive terms, such as low interest rates and long maturities, and be broadly accessible, provided robust risk analysis and mitigation measures are put in place[26]. To enable and implement these schemes, national authorities can use the road map for on-bill schemes uptake developed by the RenOnBill project[27].

Against this background, the key actions on on-bill financing are:

- **Assess whether the national framework allows for the development of on-bill schemes**. The key elements to consider are: a suitable legislative framework allowing utilities to act as lenders; correct and widespread implementation of EU rules on individual metering and accuracy of single units' energy consumption; provisions protecting investors from default on loan repayment while maintaining consumer protection; possibility for utilities and financial institutions to use bill payment records for assessment of end users' risk profile; and laws regulating owner-tenant relations which support a fair distribution of the investment costs and loan repayments.

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[25] On-bill financing is a method of financing energy efficiency renovations in buildings that uses the utility bill as the repayment vehicle. On-bill schemes use the utility's existing payment systems to reduce transaction costs and the risk of potential loan default.

[26] The structures of on-bill financing schemes are presented in the Commission Recommendation on transposing Article 30 on national energy efficiency funds, financing and technical support of the EED recast (C/2023/1553).

[27] European on-bill Building Renovation Roadmap (2022) RenOnBill H2020 Project. The RenOnBill project (2019-2022) brought together consultancies, energy utilities and financial institutions to test on-bill financing schemes in Germany, Italy, Spain and Lithuania, with the goal of expanding their adoption across Europe. For more information on the RenOnBill roadmap: https://renonbill.eu/knowledge-sharing/european-on-bill-building-renovation-roadmap?briefings=on&brochures=on&factsheets=on&infographics=on&language=any&reports=on&scientific papers=on&tools=on&page=1.

- **Grant energy utilities the right to provide financing for energy efficiency**. For utility-financed schemes, EU Member States may need to amend legislation on creditors to confirm that utilities have the legal right to provide credit for renovations. On-bill financing solutions require a utility to supply the capital to fund the energy efficiency works, while the consumer repays through regular payments on existing utility bills.

- **Ensure sufficient cashflow in implementing entities (e.g. utilities, ESCOs) to achieve scale, and/or establish national or local guarantee and support funds.** For example, a national energy efficiency fund could purchase the receivables of the on-bill financing scheme and ensure de-risking to provide financial backing to pilot schemes (e.g. via loan guarantees). **Public guarantee funds and credit lines** that can facilitate the implementation of on-bill financing schemes by utilities and financial institutions. Such guarantees could be activated in if a homeowner defaults on their loan, reducing the investment risk perceived by lenders. Dedicated on-bill financing support credit lines could be deployed as part of public financing for energy efficiency, such as national energy efficiency funds. Public budget support for the uptake of on-bill financing schemes could take the form of covering, in part or in full, end users' interest rates repayments as part of their energy bills, enabling them to enjoy the full monetary benefits of the energy savings. Or it can take the form of co-financing to reduce the overall investment costs for specific challenging projects (deep renovations, worst-performing buildings, vulnerable households).

On-tax financing schemes involve allowing households or companies to incur a debt to cover the cost of residential or commercial building renovations, the purchase of energy efficient appliances or equipment, or other energy processes improvement, using specific taxes and/or other charges related to the property **as the repayment vehicle**. On-tax financing schemes include mechanisms to enable the debt to be passed on from previous property owners to the next ones, without necessarily having to liquidate it. This establishes a straightforward debt transfer mechanism to overcome the disincentive for property owners to invest in energy efficiency measures with long paybacks period. On-tax financing schemes allows property owners to implement improvements without large upfront cash payment (in some cases there is 100% upfront financing) and repay the costs over a period of 10 or 20 years via property taxes or other fiscal charges related to buildings. They can be provided by either public sources such as municipal government or by private funds.

Examples of on-tax financing schemes include the EuroPACE project in Spain[28] and the FITHOME project[29], which upscaled the EuroPACE approach in the Netherlands, in cooperation with local authorities and financial institutions.

[28] EuroPACE Horizon 2020 project, https://cordis.europa.eu/article/id/422271-a-home-based-financing-model-to-boost-investments-in-sustainable-renovation.

[29] FITHOME developed an on-tax financing programme, targeting energy efficiency investments in residential properties in the Netherlands. The Dutch company De Woonpas is leading the initiative, in cooperation with Dutch municipalities. The tax-based financing programme operates primarily through two special purpose vehicles, SVGVR (Foundation Verzamelgelden) and SWGVR (Foundation Waarborg). The BNG Bank (Bank of Dutch Municipalities) lends money to SVGVR, which covers the costs of the works on behalf of the municipality. Homeowners are then charged a 'betterment tax' – a monthly tax on the increased value of the property – over 30 years, calculated to ensure repayment of the debt is affordable for homeowners. The SVGVR receives the tax payments, while the SWGVR acts as a guarantee, applying a small percentage to the monthly tax to cover financial risks for municipalities in case of issues with homeowner repayments. The

Against this background, the key actions on on-tax financing are:

- **Assess whether the national framework allows on-tax schemes to be developed**. This includes analysing the tax systems, and identifying the need for regulatory reforms of property taxes and other related charges on buildings, to enable on-tax financing schemes. It also involves ensuring that local public authorities can collect repayments and transfer them to private investors, without consolidating them into their local municipal budget. The existence of property taxes or similar fiscal charges on buildings is a prerequisite for implementing on-tax financing.

  Establish procedures to ensure repayments via property-related taxes and transfer of debt together with ownerships. Implementing on-tax financing schemes requires effective enforcement procedures in cases of where taxes go unpaid or of prior claims for repayment of other debts ahead of the on-tax financing. Municipalities play a key role in transferring repayments between households and investors and should be able to not consolidate these activities into the municipal budget.

  Engage the necessary stakeholders based on the experience of successful European projects. On-tax financing involves multiple stakeholders, including national and local government, financial institutions, installers and homeowners. On-tax financing for energy renovations can be provided through loans from financial institutions, with energy efficiency improvements delivered through specific contractors and costs recovered through property taxes or other fiscal charges.

3.3. Recommendation 9: Remove barriers and scale up energy efficiency financing via service agreements and foster a market for energy services

The energy services market, particularly through energy performance contract, is a key ecosystem for unlocking private financing for energy efficiency and promoting the energy efficiency business case. The energy service companies (ESCOs) market relies on service and lease agreements to fund energy efficiency investments, allowing for the movement of investment costs from capital expenditure to operational expenditure, and prioritising the delivery of continuous energy efficiency performance over time.

To facilitate the growth of energy performance contracting and the ESCOs market, it is important to deploy large energy efficiency programmes that can standardise and aggregate investment pipelines, particularly for public and commercial buildings and SMEs. In the industry and SMEs sectors, ESCOs[30] can carry out complex energy projects, by providing technical expertise and finance in areas that are not the core business of a given industry (e.g. waste heat recovery and reuse).

Energy Performance Contracting (EPC) is used when a counterparty (e.g. an ESCO) commits to installing necessary equipment and guarantees a specified energy savings performance. EPC establishes the upfront terms and splits of ongoing payments, which are

process is linked to the Dutch cadastral system 'Kadaster', to monitor the collection of the betterment tax. For more information: FITHOME Horizon 2020 project, https://cordis.europa.eu/project/id/892214.

[30] European Commission JRC (2017), *Energy Service Companies in the EU*. The document provides overview of types of ESCOs and examples from the Member States.

intended to be less than the financial savings realised by the project's energy savings. EPC offers a one-stop, turnkey contract for the customer, which has just the one counterparty for the entire duration of the contract. The EPC providers also manage the performance risks and guarantee the savings. However, EPC includes increased transaction costs, high capital requirements to ensure continuity of operations, since ESCOs are refinanced with small-value, long-term instalments, and a lack of standardised framework and templates for monitoring and verifying savings. In the absence of dedicated guarantee schemes or other forms of public budget support, these challenges often results in cost-optimal energy efficiency measures focused on short payback times, due to EPC providers' unwillingness to bear long-term risk.

EPC is particularly suitable for carrying out energy efficiency improvements in the public sector, where the comprehensive expertise and guaranteed performance brought by service providers ensure the effectiveness of the investments. The technical risk of achieving energy savings lies with the service provider throughout the whole contract duration. Third-party financing, with the repayment of the upfront investment cost by energy costs savings, enables projects to go ahead even if public funds are insufficient, and the possibility of off-balance sheet treatment of EPC allows public accounts to remain in equilibrium. Public procurers are recommended to assess the feasibility of concluding long-term energy performance contracts that provide long-term energy savings when procuring service contracts with significant energy content (e.g. heating supply). To facilitate the use of EPC in public and private sector investments and remove administrative barriers, Member States should provide standard model contracts, which, for the public sector, will need to be compliant with the Eurostat Guide on off-balance sheet treatment of EPC in public accounting.

Private resources for energy efficiency improvements can come from ESCOs' own resources, or via **third-party financing**, involving credit institutions or other private investors, often in the form of debt financing. With the first option, ESCOs borrow financial resources necessary for project implementation. With the second option the energy-user/customer takes a loan from a finance institution, backed by an energy savings guarantee agreement by the ESCO. The energy savings guarantee reduces the risk perception of the bank, demonstrating that the project will generate a positive cash flow, i.e. that the savings achieved will certainly cover the debt repayment, with positive effects for the negotiated interest rates.

While the use of EPC and the market for ESCOs is present and operational for commercial and public buildings, a scaling-up potential exists for industry, particularly for SMEs and their manufacturing processes, and for renovation of private residential buildings. To support ESCOs in penetrating these markets, it is crucial to reduce risks and uncertainty over clients' ability to repay upfront financing and shield ESCOs from clients' default, for which public guarantee funds specifically allocated to EPC and ESCOs financing can be beneficial. At the same time, existing barriers to scale up the ESCOs market and private financing are not only related to risk profile of the potential customers, but also to ESCOs' own capital liquidity and ability to increase their risk-bearing capacity, and thus sign new operations. For these reasons, a key avenue to scale up ESCOs' operations is represented by re-financing mechanisms, such as factoring funds and specific energy efficiency financial vehicles, acquiring ESCOs receivables for secondary market securitisation.

The FinEERGo-Dom project[31] offers a compelling example of how energy performance contracting and ESCOs operations can be leveraged.

Against this background, the key actions to upscale the market for energy efficiency services and ESCO financing are:

- **Use EU and national public budget support to develop the ESCOs market by facilitating financing for ESCOs and energy efficiency special purpose vehicles**. Deploy guarantee funds for EPC, ESCOs re-financing facilities and factoring schemes with the objective of supporting ESCOs risk-bearing capacity, de-risk their existing operations and increase their financing potential and market penetration.

- **Promote the role of ESCOs and new forms of contracting, such as 'energy as a service' and EPC, as a pillar of national energy efficiency policy.** These business models have significant potential to address upfront investment costs for energy efficiency interventions and clean electrification technologies.

- **Promote the update of legislative frameworks and public tenders to explicitly recognise and facilitate ESCO financing and EPC.** Recognise 'energy as a service' and EPC as the key business model to attract private market participation to monetise energy savings as a tradeable commodity.

- **Develop partnerships between technology providers, energy distributors, energy service companies and financial institutions** to promote sustainable and efficient energy solutions, demand-response mechanisms and energy system flexibility. These collaborations can lead to comprehensive offerings that integrate energy efficient technologies, such as heat pumps, with distribution networks and services.

- **Support the deployment of advanced metering infrastructure,** including smart grids and energy networks that can automatically monitor energy flows and adjust to changes in energy supply and demand. Pairing smart meters with smart grids can provide real-time information on energy-usage to consumers and suppliers.

3.4. Recommendation 10: Deploy public guarantees and other de-risking tools to increase access to private finance for energy efficiency

For market segments such as low-income households and SMEs, the development of energy efficiency investments is often hindered by high risk and difficult access to finance. However, private finance supported by public guarantees or loans can provide an effective channel to target these segments. De-risking instruments and tools, such as public guarantees, the sustainable use of grants and subsidies, and standardisation can reduce default risk and improve confidence in energy efficiency investments.

[31] The FinEERGo-Dom Project adapted and implemented the innovative Latvian Building Energy Efficiency Facility (LABEEF) model in Poland, Austria, Romania, Slovakia and Bulgaria. The project facilitated comprehensive, deep renovations in the building sector by leveraging a performance contracting model that guaranteed savings and harnessed the capabilities of ESCOs. The innovative financial model included the adoption of the EPC approach, which eliminated the need for building owners to invest upfront capital, making renovation projects financially viable and enhancing the liquidity of ESCOs. For more information: https://fineergodom.eu.

Public guarantees can boost energy efficiency investments by de-risking projects for lenders and investors. They can increase the creditworthiness of homeowners and enterprises, complement national programmes, and facilitate access to private co-financing. Public guarantees can also cover investments costs partly or fully in cases of non-delivery of the energy savings expected, implementation problems, or borrower default. Additionally, they can support low-to-zero interest rates for energy efficiency loans, and aggregation and standardisation of smaller projects, facilitating re-financing, securitisation and secondary market participation. Furthermore, they can support the uptake of innovative financing schemes for energy efficiency that can more easily attract private capital participation, through means such as ESCO participation, on-tax and on-bill financing. Innovative financing solutions often require public guarantees not only to reduce the investment risks, but also to increase the trust that individuals and private enterprises place in more innovative approaches to support energy efficiency uptake.

Transaction enablers such as **technical assistance** support and **other energy efficiency project aggregators** are also key de-risking tools. By supporting the development of energy efficiency project pipelines through standardised assessment, practices and procedures, technical assistance facilities and project aggregators create market practices and generate trust in private investors. De-risking tools and transaction enablers are considered to be especially important in nascent markets due to the high perceived risks, lack of familiarity within financial institutions, and lack of development capacity within the energy efficiency sector. In addition, a clear market signal from national governments on prioritising investments for energy efficiency is another powerful de-risking tool, providing a long-term perspective and building trust among private and institutional investors.

Against this background, the key actions for supporting the development of de-risking instruments and public guarantee schemes for energy efficiency are:

- **Establish long-term public guarantee facilities for energy efficiency loans and services**. Such facilities should be deployed as dedicated credit lines and funds in national organisation responsible for capital investments, including national promotional banks and national energy efficiency funds, where they exist. Public guarantees can be deployed as a complement to national programmes and public incentives for energy efficiency in order to increase access to private capital or favour lending from commercial banks.

- **Identify country-specific risks and difficulties in accessing finance for market participants** such as low-income households and SMEs. Energy efficiency policies specifically targeting, for example, low-income households have positive social impacts and can deliver multiple benefits. They include energy audits combined with financial instruments consisting of loans and grants for building renovations, or dedicated awareness campaigns built on a better understanding of energy efficiency opportunities and their costs and benefits.

- **Make use of public guarantees to support the development of innovative financing schemes for energy efficiency, including financing opportunities via energy efficiency as a service.** Energy performance guarantees can, for instance, attract more ESCO companies, increase their market scalability, enable them to address new markets, and support the kick-start of the energy service market in the residential sector.

3.5. Recommendations 11: Promote re-financing opportunities and favour development of the secondary market for energy efficiency

Facilitating the development of the secondary market for energy efficiency, for instance via green bonds[32], can increase the number of energy efficiency projects and significantly improve capital availability for private investors in energy efficiency. Green bonds are issued mainly for energy assets including energy efficiency. The energy efficiency sector covers new and refurbished buildings, energy storage, district heating, smart grids, appliances and products. Issuing green bonds provides a deep and large pool of investor finance, a high leverage effect, has no need of public funding, and provides strong market signalling. It can attract new investors and highlight the need for greater focus on energy efficiency thresholds and portfolios of deep renovations for buildings.

A **Regulation on a voluntary European Green Bond Standard** (EUGBS) was adopted on 22 November 2023[33]. Issuing green bonds under the new standard requires full compliance with the EU Taxonomy Criteria for the assets financed by a green bond.

The development of a secondary market for energy efficiency is often linked with the establishment of project aggregators, energy efficiency re-financing and forfeiting facilities. Re-financing for energy efficiency involves transferring the rights to the energy (cost) savings receivables and/or expected energy efficiency investment repayments to financial institutions or institutional investors. In the context of ESCO financing and EPC, ESCOs or the original lender can transfer rights to future payments from EPC, enabling ESCOs to receive capital injections and liquidity to increase their operations. ESCOs and financial institutions often create dedicated partnerships to bundle together receivables from EPC in dedicated green bonds. Super-ESCOs have emerged to favour project bundling and act as intermediaries between ESCOs and institutional investors. In the context of energy efficiency loans and mortgages, financial institutions usually bundle together existing debts linked to energy efficiency loans and mortgages into green bonds, to be placed on the secondary market. The establishment of forfeiting and re-financing facilities can be supported by national authorities and public intervention, for instance by establishing facilities favouring the aggregation of projects from different loan originators. The UCI securitisation fund[34] in Spain and Portugal is an example of this kind of collaborative initiative.

Against this background, the key actions for Member States are:

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[32] Green bonds are a type of debt issued by public or private institutions to finance themselves and, they commit the use of the funds obtained to an environmental project or one related to addressing climate change. See examples in the 2022 EEFIG ' Report on the evolution of financing practices for energy efficiency in buildings, SME's and in industry' https://op.europa.eu/publication-detail/-/publication/a3032517-c761-11ec-b6f4-01aa75ed71a1.

[33] Regulation (EU) 2023/2631 of the European Parliament and of the Council of 22 November 2023 on European Green Bonds and optional disclosures for bonds markets as environmentally sustainable and for sustainability-linked bonds (OJ L, 2023/2631, 30.11.2023, ELI: http://data.europa.eu/eli/reg/2023/2631/oj).

[34] The RMBS Green Prado XI/UCI Securitisation fund is a collaborative initiative involving the EIB, Instituto de Crédito Oficial (ICO), and Unión de Créditos Inmobiliarios (UCI), to securitise residential mortgages from Spain and Portugal. It promotes energy efficient residential projects in Spain and Portugal by bundling residential mortgages into a securitised portfolio. The securitisation fund bundle assets (residential mortgages in the UCI fund) to create investment portfolios attractive to institutional investors. For more information: https://www.eib.org/en/press/all/2023-165-eib-group-and-ico-invest-in-uci-securitisation-fund-for-renovating-and-building-residential-homes-using-sustainable-criteria-in-spain-and-portugal.

- **Drive and support the development of the green bonds market** in their national context, including the issue of national and regional green bonds, promoting the use of the voluntary European Green Bond Standard, and/or establishing dedicated standards catering for their market specificities and needs.

- **Establish dedicated dialogues with financial institutions** to facilitate the collection and exchange of best practice on the development of green bonds for energy efficiency, and exchanges on how to favour the development of a secondary market for energy efficiency investments.

- **Support the establishment of dedicated energy efficiency re-financing facilities**, including factoring schemes for EPC and the creation of super-ESCOs, and energy efficiency securitisation funds as collaborative initiatives between promotional banks and private financial institutions.

3.6. Recommendation 12: Improve data collection on energy efficiency, including on energy efficiency investment financial performance and to support energy savings monitoring and verification measures

Comprehensive and systematic tracking of energy efficiency investment data remains a challenge. Enhancing reporting systems, combined with monitoring and benchmarking of energy and financial performance, can improve the financial treatment of energy efficiency.

Harmonising and simplifying monitoring and verification practices for energy savings across Member States and financial investors can reduce transaction costs, build trust in the financial performance of energy efficiency investments, favour market integration for energy efficiency services, and increase confidence in the monetary value associated to energy savings and their tradability.

Article 8 and Annex V of the Energy Efficiency Directive establish common criteria for energy saving verification and control measures to fulfil annual energy saving obligations. Additionally, European and international standards[35] can be used by financial institutions and investors to measure and verify the energy savings performance achieved by their lending operations.

Against this background, the key actions to improve data gathering, analysis and favour harmonisation of monitory and verification measures are:

- **Support harmonisation, standardisation and simplification of energy savings monitoring and verification measures across Member States and economic sectors**. Monitoring and verification of energy savings should be made simpler and harmonised across market actors, from ESCOs in charge of ensuring the energy performance of the investments to financial institutions responsible to fulfil their disclosures obligations, and possibly interested in trading the investment receivables in the secondary market. Barriers such as different and/or too complex calculation methodologies across Member States and economic sectors should be addressed by

[35] Examples of standards developed by the European Standardisation Organisation, relevant for building and industry sectors include: Energy auditing (EN 16247), Energy performance of buildings (EN ISO 52000 family of standards), Energy and Environmental management systems (EN ISO 50001 and EN ISO 14001), Energy efficiency services and related multiply benefits-co-benefit (EN 15900), Energy performance contracts (EN 17669), and Valuation of energy related investments (EN 17463).

fostering cross-border harmonisation as part of Member States cooperation in common EU energy efficiency fora, such as the Concerted Actions or Experts Groups on the EED and EPBD. Establishing national energy saving schemes (energy suppliers obligation scheme, energy saving targets for large energy-intensive companies), can facilitate standardising eligible energy efficiency solutions and energy saving measurement and verification procedures.

- **Promote the application of international standards** as de-risking tools to assess and measure the energy and environmental benefits and co-benefits of energy efficiency projects. Applying and referring to international standards, e.g. in the due diligence and underwriting procedure of financial institutions, can enable transparency, comparability of different options as well as increase the materiality of reporting and disclosure.