



## Leveraging funding for energy efficiency in buildings in South East Europe

Jorge Núñez Ferrer

### Abstract

This paper addresses the possibility of creating financial instruments so that large scale energy efficiency renovation programmes can be substantially financed by the private sector. Aimed at decision-makers and those wishing to understand the issue, it avoids excessive technicalities. The paper presents some selected examples of financial instruments for energy efficiency that could represent possible blue prints for South East Europe. It concludes by proposing to develop variations of one of the simplest models to avoid ambitious, complex but ineffective instruments. A clear warning is given on the need for a careful ex-ante assessment of the legal framework, other barriers and the capacity of building associations to request loans on behalf of the owners. It also insists that business strategy development requires special attention.



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## 1. Introduction

Energy efficiency is of particular importance in the poorest members of the CESEC area due to widespread energy inefficiency and the lack of private finance. The high energy intensity of many of the economies is due to the quality of infrastructures, industries and age of the vehicle stock, and the state of the building stock. This is important for climate policy, but also highly relevant for tackling improvements in living standards (including air quality) and the energy poverty of households. The latter is compounded by the low quality of the building stock and the lack of financial means to address this issue. This report focuses on energy efficiency in private sector building and discusses the possibility of using financial instruments to leverage investments with potential in the region, looking at both their strengths and weaknesses.

According to the European Commission (2018), 30% of the households in South East Europe (SEE) suffer from energy poverty compared to an EU average of 11%, which is already high. Now part of the strategic priorities according to the “Clean Energy for All Europeans” new energy package proposals presented on the 30 November 2016,<sup>1</sup> this issue is gaining importance as low-income households see the share of their income dedicated to energy steadily increasing.

Finding financially viable solutions for housing stock is thus an important priority, particularly for SEE, but the upfront costs of energy efficiency measures is not negligible and attracting private investments in energy efficiency in buildings is hampered by numerous well-known difficulties and market failures. Many barriers have been overcome in a number of instances through specialised investment instruments, but there is no ‘one size fits all’ solution and many instruments are context-specific. Are there any models that can be used in CESEC countries that can also overcome the problems of low household incomes?

This paper explores the potential of using specialised financial instruments to leverage private funding to cover the significant needs for energy efficiency in buildings. The aim is to be practical and present some of the most successful approaches that could form the bases to develop financing schemes.

Section 2 presents a short overview of the challenges faced in the CESEC countries, particularly South Eastern Europe where the implementation of private sector financial instruments to attract private finance is very challenging. It also presents some common barriers that affect the choice of the instrument or necessitate action before a renovation programme can start. Section 3 presents a short overview of the available financial institutions and EU support instruments that can be approached for technical assistance and support for setting up a financial instrument for energy efficiency. Section 4 presents three models and a relevant case study for the region in order to gain a better understanding of the practical aspects of implementation. Finally, the report offers some short conclusions on the way forward.

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<sup>1</sup> <https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans>

## 2. Challenges to attracting private finance in CESEC

Instruments involving the leverage of private finance to deliver energy efficiency in private multi-storey buildings face a number of barriers that have complicated the adoption of energy efficiency measures in many countries, both wealthy and poor, advanced and less developed. The lower financial capacity of households in SEE countries compounds the problems. Programmes should take the realities on the ground into account.

There are a number of barriers that may affect capacity to bring about energy efficiency solutions at the necessary or sought-after speed:

1. The appropriate regulatory framework

The regulatory framework throws up many potential barriers to attracting investment in the energy sector. Legislation may discourage investment in energy efficiency, or simply not be optimal for promoting investment. This may be on account of the distribution of legal rights between tenants and owners, restrictions on investments due to permits and bureaucracy.

2. A proper understanding of the market

The development of effective instruments requires a detailed analysis of the market gap. A wrongly designed instrument can fail to create any impact. A detailed impact assessment is thus necessary. For the financial instruments supported by the European Commission there are heavy ex-ante requirements. They may be too burdensome,<sup>2</sup> but understanding the gap in the market and the actual financial capacity of beneficiaries is crucial in order to design the right instruments.

3. Energy poverty and low incomes

As mentioned in the introduction, the European Commission estimates that 30% of households suffer from energy poverty. Energy poverty is an important barrier for programmes needing to attract private investment. For this reason, the design of the instruments requires a well-designed social component to accompany the loan-based system to address the needs of the poorest.

4. Financial risks

Financial risks are associated with the level of returns that the project might generate. Nevertheless, estimating the return on investment (ROI) on the basis of annual net energy savings is a more difficult exercise than determining the expected cash flow generated by a project. The annual net energy saving, indeed, depends on other factors, such as stakeholder behaviour (see point 6). A certain level of uncertainty is embedded in energy efficiency projects.

In addition, energy-efficiency measures only tend to ensure ROI on a relatively long lifespan, thereby increasing the level of risk associated to the project. Additional financial risk comes from insufficient knowledge of energy efficiency in buildings. In combination with a relatively

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<sup>2</sup> According to a review by Núñez Ferrer et al. (2017) for the European Parliament, the ex-ante assessments required are not optimal and too cumbersome.

small market size for high energy-efficient technologies, these are among the most relevant concerns for financiers and contribute to increased difficulty in finding private funds ready to invest in energy efficiency projects.

Low household incomes may also limit the possibility of attracting private investment in the area of energy efficiency in buildings. Low-income households in a condominium may block refurbishments for a whole building unless they are compensated or supported. In South East Europe there is also a lack of social housing where such barriers are lower allowing renovation programmes to quick start there and become showcases for private landlord associations.

#### 5. Lack of skilled workforce

This paper does not address the lack of technical skills and contractors. The EU has launched a number of programmes that are being implemented in CESEC countries to foster a skilled workforce. These are listed in the good practices report by the European Commission (2018). There is a need, however, for much larger programmes across the region.

#### 6. Split incentives and common decision-making

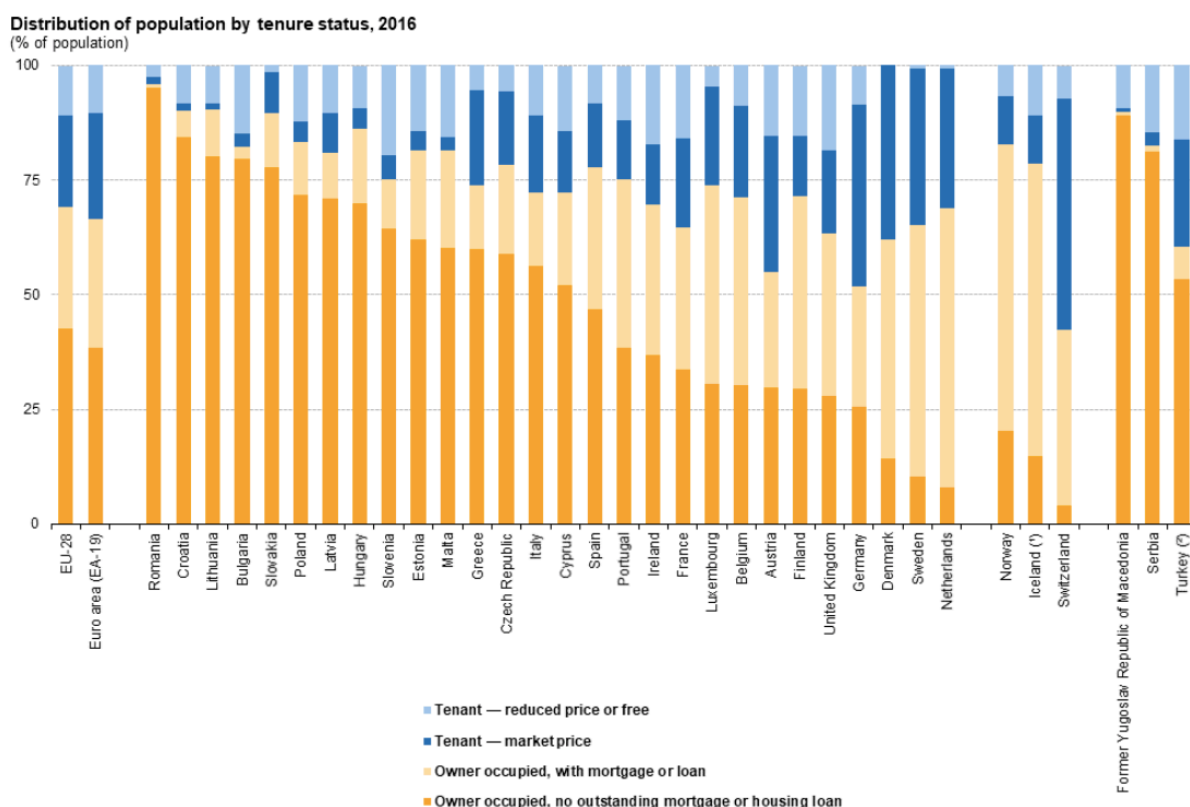
Projects for energy efficiency in buildings often face the well-known split incentives between owners and tenants. Tenants do not want to install a more efficient system, because the return on their investment will be taken by the next tenant. Owners are not interested in installing energy efficiency systems because energy use is paid by the tenants. Owner-occupied housing, however, exceeds 80% in most SEE countries, reaching 96% in Romania (Figure 1), a factor that supports the process of refurbishment.

One of the solutions to this situation is to have tenants pay for the investment using the amount of energy savings and ideally directly through their energy bills, regardless of whether the tenant changes. However, if the savings are large enough the owners could install the systems and charge an increased rent offset by the lower energy bills for the tenants. Such arrangements are, however, not always legally possible. Generally, they tend to be easier for commercial and office buildings.

One way to avoid split incentives is to involve owners and tenants in the project development process or have a legal framework that facilitates decision-making and encourages owners to undertake the refurbishments.

Another complication that has considerably influenced programmes for private multi-storey buildings is the possibility of a legal framework allowing Homeowners Associations (HoAs) to obtain credit as an entity. In turn, it is important that rules exist that effectively enable a common position to be taken and an obligation for all owners to participate based on a majority voting system. A system that requires unanimity to agree on refurbishment and/or requires loan agreements to be with individual home owners will not lead to progress. Where housing Associations lack collateral for such loans, EU or national funds can be used as a guarantee for lenders, which is the case in the lending programmes presented.

Figure 1. Tenure status in Housing (% of population), 2016



Source: Eurostat (online data code ilc\_lvho02).

### 3. Support instruments

For EU member states, the European Regional Development Fund (ERDF) can offer grants and equity and debt instruments<sup>3</sup> for energy efficiency programmes. The European Social Fund (ESF) can support related measures, such as education and training in this area. For non-EU member states in SEE, the EU Instrument for Pre-Accession Assistance (IPA) only plays a minor role compared to the ERDF. It focuses primarily on infrastructures, but may finance capacity building and training programmes for setting up the necessary institutions.

In addition, the EU research and development programme Horizon 2020 can finance the research of a model appropriate for specific territories. Some of the models presented in this paper benefitted from Horizon 2020 support in exploring the market and potential business models and setting up the necessary bodies, which continued operating after Horizon 2020 support came to an end. Non-EU countries in SEE can also take part as partners in research programmes. A number of projects in the area of energy efficiency in SEE are presented in the European Commission (2018) report.

<sup>3</sup> The different instruments are presented in the EIB (2015) description of loans, equity, guarantees and quasi-equity instruments.

While there is a particular interest in access to funding from the EU budget, there are a number of other public and private financial institutions that can provide support. Public financial institutions active in this field and ready to support programmes in the region are for example, the European Investment Fund (EIF), KfW (German national promotional bank), the Council of Europe Bank (CEB), the European Bank for Reconstruction and Development (EBRD), member state development funds and institutions and even public housing associations in member states. The World Bank is also active in the region and can support the schemes. For EU member states, the EU's "fi-compass" advisory hub is also available for guidance and technical assistance.<sup>4</sup> The EBRD, the KfW and other financial institutions also offer advisory and technical assistance services across the region.

The promotional and development banks also coordinate their operations in non-EU member states through the Western Balkans Investment Framework (WBIF)<sup>5</sup> which can be approached for support. The participating financial institutions and the European Commission, which oversees the WBIF, can provide information on support options and funding for technical advisory support.

There are already active funds for energy efficiency in the SEE countries using lending facilities, but they are mostly involved with public rather than private multi-storey buildings due to the complexity of the business models. A rare exception is the programme launched recently in Bosnia and Herzegovina for renovation of residential buildings supported under the WBIF. This financing scheme is part of the EBRD's Green Economy Financing Facility (GEFF) and the only component in the WBIF that currently targets the residential sector. It is expected that this facility will also operate in other countries in the Western Balkans. For EU members, national funds and EU structural funds offer much higher levels of capital, opening further opportunities. The sub-section below gives an overview of the sources.

### 3.1 Sources of funding

Table 1 presents EU funds for energy efficiency (EE) in EU member states; Table 2 non- EU funds that can also be accessed by the associated countries in SEE; Table 3 presents funds that can be accessed for EE in private buildings in non-EU member states in SEE (candidate countries).

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<sup>4</sup> [www.fi-compass.eu](http://www.fi-compass.eu)

<sup>5</sup> The WBIF was launched in December 2009 and has since supported development and EU accession across the Western Balkans through the provision of finance and technical assistance for strategic investments. It brings donors and financiers together into one fund and one structure to improve coordination, coherence and impact ([www.wbif.eu](http://www.wbif.eu)).

Table 1. EU Funds supporting operations in the EU member states for EE in private buildings

European Regional Development Fund (ERDF)		
Grants		<p>These grants can offer partial relief from the costs of energy efficiency building operations, reducing the burden for the beneficiaries in reimbursing renovations. Support for promotion campaigns.</p> <p>The ERDF's Joint European Support for Sustainable Investment in City Areas (JESSICA) launched in 2011 was designed to help urban areas to set up regeneration programmes and specialised funding schemes.</p>
Indirect funding		The ERDF funding can be used as risk capital, directly as loans for a revolving fund or seed funding (e.g. for setting up a new ESCO).
European Social Fund (ESF)		
Grants		Support for training and education programmes (e.g. skills for building sector), support for capacity building (e.g. management skills in public sector).
Indirect funding		ESF funding can be used in the areas it covers as risk capital, directly as loans for a revolving fund or seed funding.
Horizon 2020		
Grants		<p>Energy efficiency research funding which can cover costs of testing new technologies but also new business models. Can be used to develop a tailored business model.</p> <p>The Smart Cities and Communities European Innovation Programme can assist urban areas in experimenting with business models.</p> <p>The Horizon 2020 programme only finances new innovative approaches and consortia covering more than one country. These models can be tested in various case studies.</p>
Project development Assistance Facilities		
fi_compass		A platform of advisory services to help in setting up financial instruments provided jointly by the European Commission and EIB.
European Local Assistance (ELENA)	Energy	<p>This is a joint European Commission and EIB technical assistance support programme for the implementation of energy efficiency, distributed energy and urban transport programmes. This instrument is not recommended for energy efficiency operations alone, but can be used if the energy efficiency programmes for buildings are linked to other renewable or greener transport programmes.</p> <p>ELENA programmes are also provided by the German national promotional Bank KfW, the Council of Europe Bank and the EBRD.</p>



*Table 2. Funds not managed by the European institutions supporting operations for EE in private buildings in EU member states*

National promotional institutions			
Grants and guarantees by public institutions			A considerable number of public institutions in member states have supported programmes in other member states with grants and guarantees. Some are mentioned in the examples in this report.
Financial institutions			
Grants, loans and guarantees by financial institutions			<p>A number of national promotional banks operate across borders, such as the German KfW.</p> <p>The EBRD still operates in several Central and Eastern European member states and also in all SEE member states.</p> <p>The Council of Europe Bank (CEB) is also active in all SEE countries.</p>
Project development Assistance Facilities			
European Assistance (ELENA)	Local	Energy	ELENA programmes are also provided by the German national promotional Bank KfW, the Council of Europe Bank and the EBRD.

*Table 3. Funding for private buildings in non-EU SEE countries*

EU Instrument for Pre-accession	
<b>Grants</b>	The EU Instrument for Pre-Accession Assistance (IPA) is primarily focused on public infrastructures, but can indirectly support the administrative capacity to set up the investment structures necessary for private buildings. Training programmes that cover this area can be financed.
Financial institutions	
<b>Grants, loans and guarantees by financial institutions</b>	<p>The EIB and a number of national promotional banks operate across borders, such as the German KfW. Also the EBRD, the World Bank, the Council of Europe Bank and national development agencies operate in the region.</p> <p>The EU's Western Balkans Investment Facility (WBIF). This coordination instrument and investment trust fund combines grants from member states and international financial institutions to provide technical assistance, guarantees and coordinates loans of the associated financial institutions, which have the objective to leverage private funding by associating local financiers to the operations.</p> <p>The EBRD's GEFF fund is supporting a building renovation and energy efficiency programme in Bosnia and Herzegovina.</p>
Horizon 2020	
<b>Grants</b>	The non-member states in SEE are all associated countries that have the opportunity to participate in Horizon 2020 projects. Several projects for energy efficiency in buildings that are linked to new technologies and technology transfer include non-member countries in the Western Balkans. <sup>6</sup>

<sup>6</sup> The relevant programmes are listed in the European Commission (2018) guide on good practice in energy efficiency for central and South Eastern Europe.

#### 4. Setting up a successful financial instrument for EE in buildings

There are a few promising – possibly replicable – financial instruments, which have leveraged funds for energy efficiency in new member states. Generally, no individual model can be easily transposed without careful adaptation to national circumstances. A thorough impact assessment is important for all financial instruments. European Structural and Investment (ESI) Funds require extensive ex-ante assessments<sup>7</sup> when financial instruments managed nationally are using EU funds, but even in the absence of EU support, financial institutions also require similar assessments with the aim of identifying the market and requirements for a sustainable mechanism.

One of the primary recommendations before embarking on setting up any financial instrument is to consider what kind of specialised institution will best handle the setup and control of the instrument. Increasingly, specialised holding funds or funds of funds are emerging to handle the combination of public support with private leverage for a number of areas of intervention. These specialised funds have increasingly shown promising results. They are bodies set up by public authorities to select appropriate intermediaries and monitor financial support.

There are already a number of examples of holding funds supporting energy efficiency in buildings. Holding funds are important as they avoid many difficulties faced by a public administration in combining private and public financing structures, and also mitigate the problems of capacity building and the specialised financing knowledge required in the administrations. The natural managers of such holding funds are national promotional banks and institutions.

Other specialised public companies can be set up for investment decisions and management. Urban development funds have been set up in some cities to coordinate and run urban development projects on behalf of the public administration. These funds can coordinate public and private sources of funding and develop business models in a number of urban development areas. Another positive aspect of these urban development funds is that they can have wide portfolios with a higher risk sharing capacity and enable the coordination of a number of projects.

In the area of energy, Energy Servicing Companies (ESCOs) can be established to operate as energy project coordinators and channel the investments from investors or public funds. While urban development funds are project and financial management institutions established by public authorities, ESCOs can be private companies offering specialised advice, technical coordination and monitoring in the area of energy. ESCOs can play a key role in providing solutions to HoAs, thereby lessening the technical selection burden for the beneficiaries.

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<sup>7</sup> As required by the Common Provisions Regulation (EU) No 1303/2013 article 37.2.

## 4.1 Models and examples

This section outlines three types of private building renovation programmes:

1. A renovation loan programme where banks are invited to lend funds for energy efficiency renovations in buildings to housing associations (HoA), with guarantees issued by a public financial institution alongside financial incentives in the form of grants to incentivise actual and higher energy savings.
2. Using an urban development fund to manage the financing of energy efficiency operations.
3. The creation of an Energy Services Company using Energy Performance Contracting with HoA to offer energy efficiency services to private buildings.

The three models will also be illustrated with examples of four successful models:

- a) The Estonian Kredex 'Renovation loan programme' launched in 2009 successfully established a loan system that transitioned from a public scheme offering upfront support to a programme mainly run by private banks. A grant instrument is still available, but as an incentive, which kicks in only when energy efficiency levels have been reached.
- b) The newly established loan programme for energy efficiency in buildings in Bosnia and Herzegovina, based on a similar concept as the Kredex loan programme. Information is scant as the initiative is still very recent.
- c) The Lithuanian Urban Fund model supported by a holding fund set up using the EU's JESSICA ERDF instrument.
- d) The Latvian ESCO and Energy Performance Contracting (EPC) programme.

These examples have been selected due to their track record in countries, which face similar challenges in the building sector with SEE countries. This allows for a certain level of comparability.

Even if some factors of success for a programme in one country may not be present in other countries, such solutions may still be possible in SEE with some necessary adaptations. The present section will explain the basic building blocks of the programmes conceptually, identifying the aspects to take into consideration when setting up the instruments.

The aim is to give an overview and offer insights while avoiding technicalities. For more precise information on how to set up such instruments and each technical aspect, it is best to refer to the work by the JRC (2010) and (2014).

## 4.2 A renovation loan programme

The choice of a 'simple' renovation loan programme for energy efficiency in multi-storey buildings requires an existing culture among building associations and managers of being able to coordinate and launch a full building renovation, as well as a legal framework that can ensure the commitment of all owners. It also demands a very strong information campaign and

financial incentives to incentivise the potential beneficiaries to seek high energy savings and avoid a rebound effect.

A renovation loan programme generally offers soft loans to multi-family apartment buildings, but could also target other buildings. The approach must take into account the percentage of properties inhabited by tenants or owner occupiers; this is important for choosing the appropriate business model to generate the right incentives and achieve behavioural changes.

Starting a renovation loan programme requires:

**A fund of funds:**

- The creation of a fund (preferably a revolving fund refinanced by returns on the investments).
- Public sources of equity to test the concept.
- Public guarantees to financial institutions would enhance the potential rollout by attracting financiers to the fund.
- Funds can also be replenished with the issue of specialised bonds such as ‘green bonds’ or income from the sale of ETS allowances or other carbon-trading mechanisms such as white certificates.

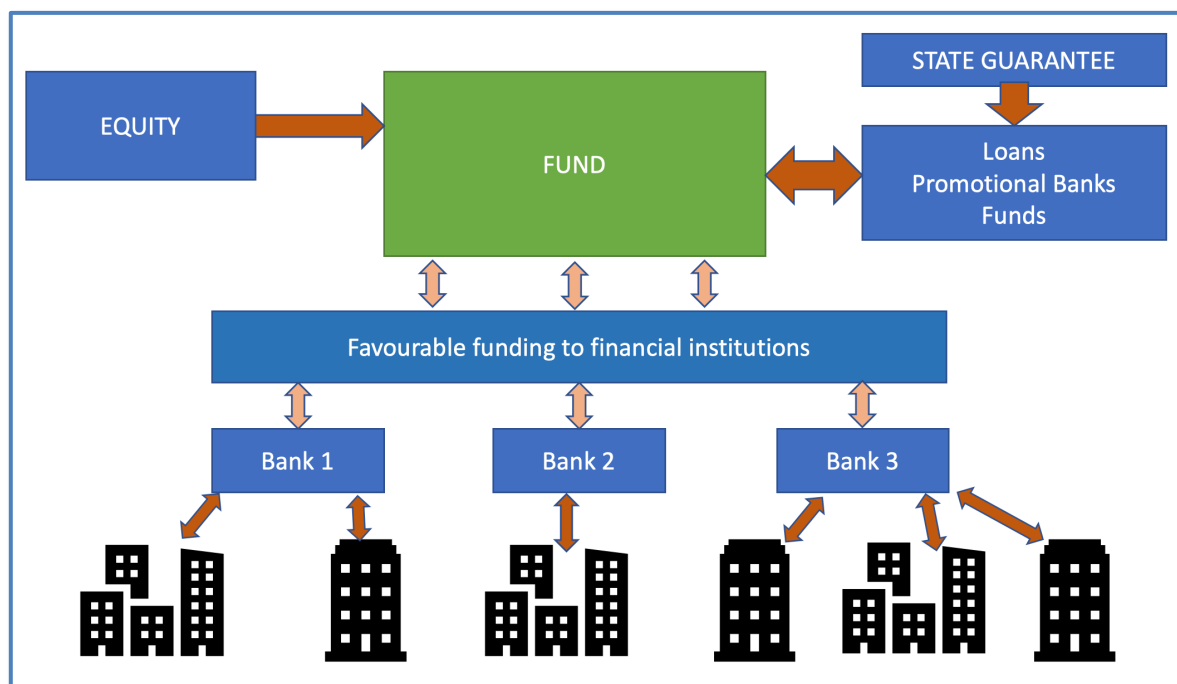
**Financial institutions such as commercial banks to manage the programme:**

- Reputable financial institutions.
- Ready to accept long loan maturities (20 years).
- Well-established and able to perform the necessary due diligence.
- The banks take the decisions and bear the full risk of non-payments. Guarantees generally cover the funds lost to the promotional banks and other public funds, but could also partially cover private financial intermediaries.

**Model of housing associations able to take decisions on building block renovation:**

- Multi-apartment building block owners have to be able to take effective joint decisions (in the shape of HoAs), preferably through a form of majority voting.
- Joint decisions should be legally enforceable.
- The existence of housing managers and energy managers of buildings facilitates operations.
- The HoAs should be able to operate as a legal entity and be able to take out a common loan.

Figure 2. Schematic view of revolving fund model



Source: Author's rendering.

### Setup of the Estonian renovation loan programme

Detailed case studies were published by the EIB (2015), the EU's advisory hub for financial instruments, and by Infinitesolutions (2014). The current system can be found on the Kredex website.<sup>1</sup>

The Estonian renovation loan programme was launched in 2009 by Kredex, an Estonian public financial institution owned by the government. It set up a revolving fund inspired by the KfW model in Germany.

The Estonian programme was initially supported by grants and guarantees from the European Regional Development Fund (ERDF), but from 2014 onwards became a fully functional stand-alone lending instrument supported by a revolving fund. Partners in the original development, financing and management of the instrument were the Council of Europe Development Bank, the Estonian State, KredEX (Estonian public financing institution), KfW Bankengruppe and two private banks, Swedbank and SEB.

Two local commercial banks won a public procurement process to manage the funds, due to their experience in the area: SEB and Swedbank.

### Set up of a loan programme in SEE: Bosnia Herzegovina

The Green Economy Financing Facility of the EBRD provides €22 million to a financial instrument for speeding up the adoption of energy efficiency solutions by private buildings. It is among the projects coordinated through the Western Balkans Investment Framework (WBIF), an EU institutional structure which brings together international financial institutions, the European Investment Bank, national development banks and institutions, as well as donor countries. It aims not only at energy efficiency, but also at alleviating energy poverty, reducing air pollution and improving quality of living.

The European Union supports the GEFF program in Bosnia and Herzegovina with grants for users amounting to 15-20% of the loan values. The partner local financial institutions are UniCredit Bank Mostar, UniCredit Bank Banja Luka, Sparkasse Bank and MKF Partner. The Austrian Federal Ministry of Finance provides incentives and technical cooperation in support of green technology investments.

The GEFF in Bosnia and Herzegovina supports green technologies for the residential sector and has created an online catalogue of 1,000 vendors of 4,000 energy efficient technologies.

#### 4.2.1 *Loan and grant design*

Key to any programme is how it is designed to attract beneficiaries as there is often no initial popular demand for a lending scheme and finance for energy savings is still not an easy sell. Such programmes also do not operate directly through ESCOs, which take on the risk of underperformance of the savings with Energy Performance Contracting (EPCs), although ESCOs could be approached by building associations or their energy managers to perform the necessary operations. It is thus important to have a clear incentive structure for both the financial institutions and the beneficiaries.

It is improbable that potential beneficiaries, particularly at the initial stages of such a programme, would pay for energy audits, project design documents and monitoring of savings in full. These components of the scheme should preferably benefit from grant support. Possible grant instruments are:

1. Grants to cover the costs or part of the costs of an energy audit (and monitoring) and project design.
2. An incentive grant where higher energy achieved results in reductions in the costs of the loan repayment.

In the case of the Estonian loan programme the grant component for the planning, auditing and monitoring was initially covered by ERDF funds, thus not by the revolving fund, which operated exclusively for the building work. The structure of the grants and loans was designed to incentivise the highest energy savings. Today, no support is given for the preparation of the renovation projects, the grant will only kick in to cover part of the overall loan for the whole cost and is modulated according to final energy savings achieved (see box below).

The banks can benefit from a loan guarantee by the fund, in the Estonian example this reaches 75% of the loan amount; repayment rates through energy billing are in general stable.

#### **The Estonian grants and loans system**

The programme operated on a adjustable combination of grants and loans depending on the level of ambition of the renovation projects.

A grant of 50% was offered for the energy audit and project design

A grant for the renovation works was offered depending on the level of savings achieved:

- 15% grant: Energy savings of 20% or 30%, minimum performance Energy label E, consumption <250 kWh/m<sup>2</sup>
- 25% grant: roof, façade, windows, heating system with energy savings of at least 40%, minimum performance Energy label D, consumption <200 kWh/m<sup>2</sup>
- 35% grant (today increased to 40%): roof, façade, windows, heating system with energy savings of at least 50%, minimum performance Energy label C, consumption <150 kWh/m<sup>2</sup>

The part not covered by the grants above could be covered by the loan (max 85%). Lenders are covered by a loan guarantee by Kredex for 75% of the loan.

Today there are no upfront grants for the energy audit and project design, it is all covered by the commercial loan. Grants kick in later as a performance incentive and are paid out to the beneficiaries on the same scales presented above based on the energy savings achieved. The grant has been raised to 40% of the reconstruction costs for the highest level of energy saving.

#### **The Bosnia Herzegovina grants and loans system**

The European Union supports the GEF program in Bosnia and Herzegovina with grants for users amounting to 15-20% of the loan value. The partnering local financial institutions are UniCredit bank Mostar, UniCredit bank Banja Luka, Sparkasse bank and MKF Partner. The Austrian Federal Ministry of Finance provides incentives and technical cooperation in support of green technology investments.

The GEF in Bosnia and Herzegovina supports green technologies for the residential sector and has created an online catalogue of 1,000 vendors of 4,000 energy efficient technologies.

The programme has been set up recently and it is too early to evaluate its performance.

Nevertheless, the above information does not resolve the challenge of informing and attracting takers, i.e. owners of building block apartments. A concerted and strong effort is required to inform the public and encourage uptake.

As well as promoting the lending programme to potential beneficiaries, workshops and seminars for builders, energy auditors, project designers and municipal authorities are necessary. The EU could support the setting up of such information campaigns and the training necessary to run them.

Furthermore, such programmes suffer from the split incentive problems for tenants and owners and other negative incentives.

#### 4.2.2 *Handling split incentives and free riding*

Crucial for a soft loan programme covering full buildings is a legal framework that enables multi-storey buildings to take out a common loan. This also includes binding rules and obligations for all owners in a building association choosing to embark on such a programme. This requires the existence of functional HoAs with a working assembly or the existence of energy managers for condominiums. One of the key barriers for loan programmes is the lengthy process to obtain agreement on the renovations between the owners and tenants of multi-storey buildings. The Estonian case is revealing on the need for sufficient support from owners, because it is only necessary to have a simple majority of 50% + one owner at the general assembly to impose a renovation. This is not the case in many countries: in some unanimity is required, while in others this rule could not be legally enforced.

To avoid a split incentives situation between owners and tenants, the tenants should either pay directly via their energy bill, as part of building management charges or have the costs integrated into their rental payments.

In some countries large condominiums may have a buildings administrator, who may also be, or can be trained to be, an energy manager able to take decisions for the condominium, manage the process of decision-making better and monitor performance.

#### **The Estonian programme: success factors and main challenges**

##### **Success factors:**

- Favorable legal framework for multi-apartment buildings to take a common loan without collateral (only cash flow agreement)
- The combination of grants and loans with incentives for higher energy efficiency projects
- The success of the renovation programmes have led the banks to reduce interest rates, with the 10-year fixed interest rate falling from 8% to 4% and then 3.5%
- Revolving fund

##### **Challenges:**

- Long preparation time, complex negotiations with different financiers, complexity of the use of EU structural funds (note that the EIB under the EU's JESSICA programme was not chosen as one of the financiers of the fund due to the high costs and complexity involved)
- A considerable effort to promote the scheme and raise awareness and motivate beneficiaries



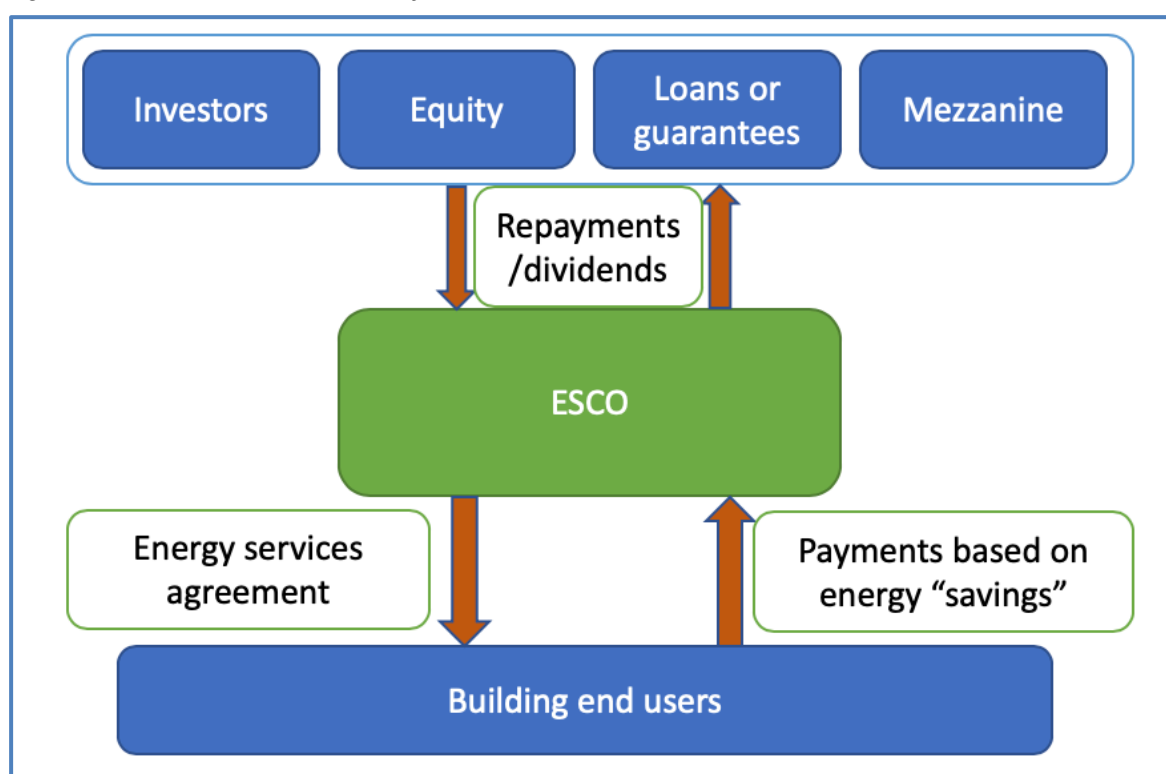
### 4.3 The ESCO model and use of EPC

To manage the rollout of energy efficiency programmes and ensure their rapid adoption a frequent model in use is the establishment of Energy Service Companies (ESCOs) and the use of Energy Performance Contracting. The use of such tools can facilitate the attraction of private finance into energy efficiency investment programmes.

ESCOs enable the removal of a number of barriers. First, it is possible to aggregate energy efficiency works, reducing transaction cost and achieving economies of scale, and spreading the risks. Risk mitigation strategies include Energy Performance Contracting (EPC), where the ESCO takes on responsibility to achieve the agreed savings.

Figure 2 presents a very simplified structure with the main element of an ESCO system – as the later example will make clear, the actual ESCO instrument complicates the picture substantially. As for the loan programme, the initial financing requirement is similar. Funds are required for the ESCO to provide energy services and contract building managers to audit, design and coordinate the delivery and monitor the performance of the refurbishment.

Figure 3. Basic schematic view of an ESCO based model



Source: Author's rendering.

Setting up ESCOs requires the right regulatory framework and skills and the European financial instruments advisory hub fi-compass provides guidance and assistance. Starting an ESCO-based system has similar requirements to a renovation loan programme, but includes more intermediaries:

**The set-up of ESCOs with EPC:**

- The creation of ESCOs with expertise to provide energy services.
- Public sources of equity to test the concept.
- ESCOs take on the risk of operations using EPCs that determine the level of refinancing.
- ESCOs monitor the performance of renovations for the duration of reimbursements.

**Model of housing associations able to take decisions on building block renovation:**

- Multi-apartment building block owners have to be able to take effective joint decisions, preferably through a form of majority voting.
- Joint decisions should be legally enforceable.
- The existence of housing managers and energy managers of buildings facilitates operations.
- HoAs should be able to take loans as a legal entity on behalf of all owners.

**The set-up of a forfeiting facility:**

- To ensure ESCOs have the resources to expand and replicate operations, they require funds to cover a rapidly increasing balance sheet of operations.
- A forfeiting facility can purchase the rights to the value of the future savings to allow the ESCO, once the guaranteed savings have been proven successful, to repay its creditors and raise new money.
- Payments should operate through a trustee to ensure transparency in the operations.
- Public guarantees to financial institutions would enhance the potential rollout by attracting financiers to fund the ESCO operations.
- Funds for operations can also be raised via the issue of specialised bonds such as 'green bonds' or income from the sale of ETS allowances or other carbon trading mechanisms.

**4.3.1 *Allocation of risk to incentivise high efficiency***

The advantage of ESCOs is that, by providing ready-made solutions for building managers or associations, they can speed up the adoption of energy saving solutions. The incentive system is very different to the loan programme, as the risks are borne by the ESCO. While the loan programme was designed to incentivise the beneficiaries to aim for major energy saving reductions and the responsibility falls entirely on the building owners, in the case of an ESCO the savings achievements are the sole responsibility of the ESCO. The ESCO is also financially penalised if expected savings are not achieved. This is where Energy Performance Contracting comes into play. The building owners or tenants repay the investment according to the energy savings achieved.

Important in any renovation programme is that the inhabitants of the building are made aware of how to manage energy flows, i.e. avoid a rebound effect and do not waste energy unnecessarily.

### Setup of a Latvian ESCO model

The Latvian SUNShINE project, supported from 2015 to 2018 by Horizon 2020 funding for the design and set-up, offers an interesting and replicable model. Similar to the Estonian model, the ERDF provided support, covering 40% of the costs, which substantially reduces the payback time to 9-10 years.

The ESCO RenEsco received equity from the European Regional Development Fund (ERDF). The remaining funding was provided by the EBRD, local commercial banks (60%) and a loan from the Dutch Housing Institute guaranteed by the Dutch Housing Corporation.

Source: Citynvest (2015) factsheet 23.

### 4.3.2 Energy Performance Contracting

It is important that the scheme guarantees performance and the achievement of objectives, including minimising the rebound effect. The loan scheme presented in section 4.1. operated using financial incentives for the owners of the buildings. This scheme places the risk on the ESCO, which is the manager of the funds and the renovation programmes. To ensure the ESCO delivers the target level of savings, Energy Performance Contracting is a popular solution.

The EPC based ESCO system operates based on the following premises:

- A long-term (usually 20 years) EPC contract is signed by the ESCO with the building association.
- The ESCO uses the funding borrowed from the financial institutions to renovate the building.
- The ESCO coordinates the project and sub-contracts the necessary companies and equipment.
- The inhabitants of the buildings pay an agreed amount which may be based on the value of the energy savings. The payment may be performed via the energy bill or the building association may collect and transfer the value of the energy savings achieved to the ESCO.

There are a number of potential models for EPC contracts, these are reviewed in detail in the GEA et al. (2012) report.

### 4.3.3 Refinancing the revolving fund

The balance sheets of ESCOs can grow fast. To ensure operations can expand further, the funds of the ESCO require replenishment to pay off creditors and raise additional funding.

One of the options is that, once savings are proven, a forfaiting facility can purchase the rights to the value of the future savings to refinance the ESCO. This purchase should not however cover the operation and maintenance costs for which the building association is liable and the ESCO may have been contracted to perform.

The ESCO's charges to the housing association (or other operators) can be legally transferred to this financing entity to amortise the ESCO's debt. The risk remains with the ESCO for any disputes with clients. Other credit risks are on the facility, only the technical performance risks

associated with the savings guarantees or warranties stay with the ESCO. This is not the only option, but it is a useful way to simplify cash flows.

Different ways the forfeiting can be done are presented in GEA et al (2012, pp 39 and 36).<sup>8</sup> Forfeiting is advantageous if the clients are creditworthy and, due to the nature of payments via energy billing, the bad debt rates have generally been extremely low.

A trustee can assist in channelling the transactions with the forfeiting facility, particularly the payments ensuing from energy savings that are paid by the building associations, so as to ensure transparency. The trustee can also ensure that the ESCO takes responsibility if the savings and thus the payments do not reach the required level.

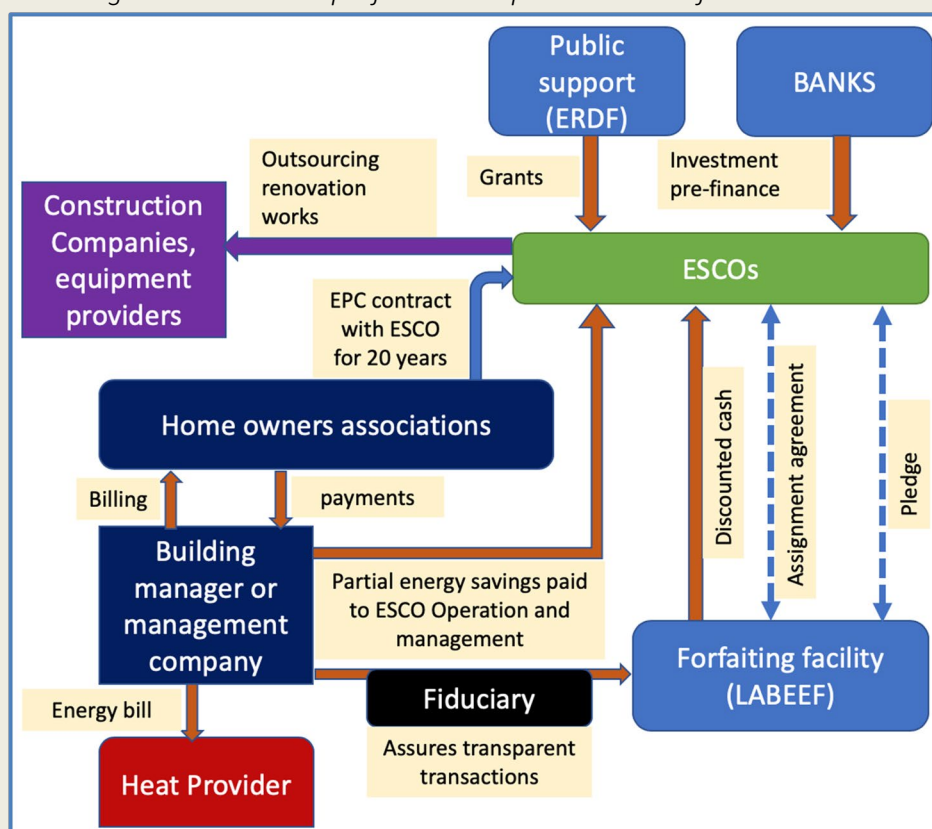
### The Latvian forfeiting facility

The forfeiting facility LABEEF was set up to purchase the value of the energy savings once achieved, allowing the ESCO to take on new loans.

A trustee oversees the transactions to the forfeiting facility.

The more complex real structure of the operational and financial model in the case of the SUNShINE specific project is presented in Figure 4.

Figure 4. SUNShINE project ESCO operational and financial model



Source: Author's rendering based on the factsheet description by Cityinvest (2015).

<sup>8</sup> In pages 39 to 46

### The Latvian ESCO programme: success factors and barriers

#### Success factors:

- Favorable legal framework for multi-apartment buildings decision-making.
- ESCOs facilitate the provision of solutions as specialised energy services providers.

#### Challenges

- More complex structures.
- Larger number of intermediaries increase costs.
- The energy performance risk is on the ESCO, not on the inhabitants of the building.

## 4.4 The urban development funds

Another way run regeneration programmes such as an energy efficiency programme is the development of urban development funds. This institution can be additional to the models above. The urban development fund will select and finance projects based on public objectives. It can focus on a single area of investment or fund projects in several areas simultaneously. It also allows for the creation of a project portfolio spreading the risks across different kinds of investments. It also has the benefit of allowing a coordinated investment approach in several related areas.

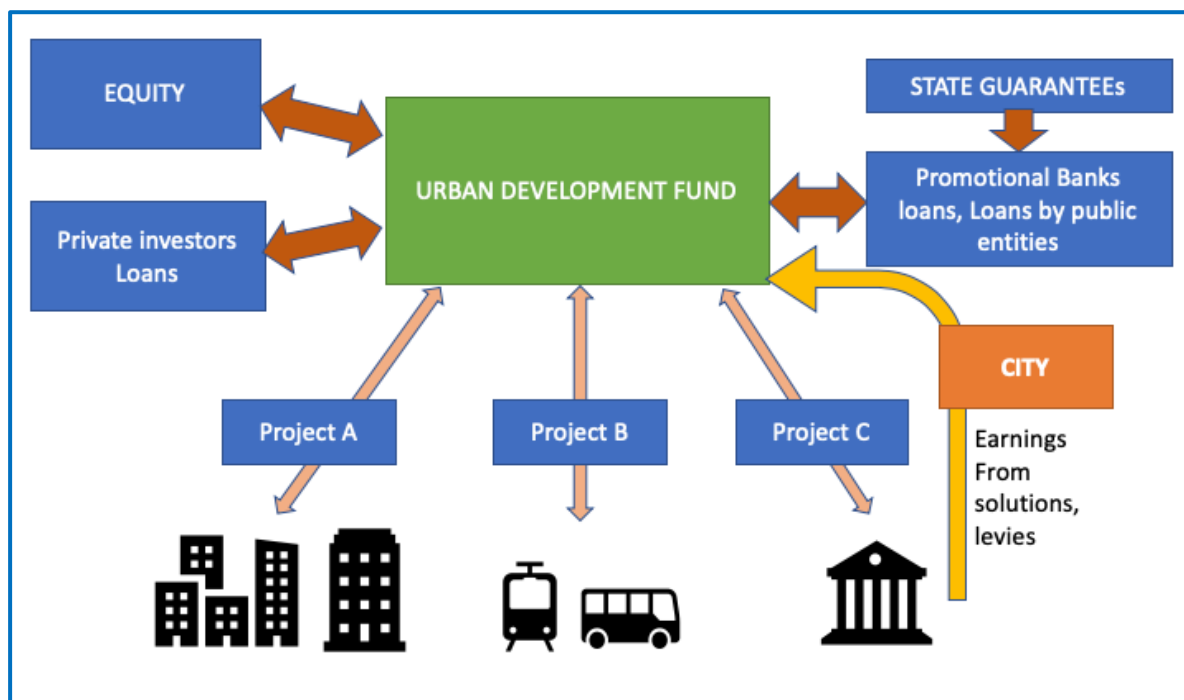
The shortcoming is that an urban development fund is not appropriate for nationwide investment programmes.

The holding fund has the advantage of specialising in the areas within its competences. In addition, it assists public authorities by alerting to the needs to alter or develop legal instruments. It is able to bring the administration closer to the needs of the financial beneficiaries, rather than transfer the relationship to the private banking sector, as is the case of the loan programme.

The holding fund has a number of characteristics that are similar to an ESCO. It is however, not an energy service provider but more of a financial entity with a public mandate covering a number of investments, as presented by Figure 4.

The urban development fund faces similar needs and challenges to the loan programme in terms of managing to attract customers and establish agreements with HoAs. In terms of the difficulties, the example of the Lithuanian urban development fund is telling.

Figure 5. Urban development fund structure



Source: Author's rendering.

### The set-up of Lithuanian urban development funds

The Lithuanian urban development fund was set up in 2009. The development was led by the EU JESSICA support programme. A JESSICA holding fund was created, managed by the EIB with ERDF and national funds. The holding fund managed the funds that financed the urban development fund.

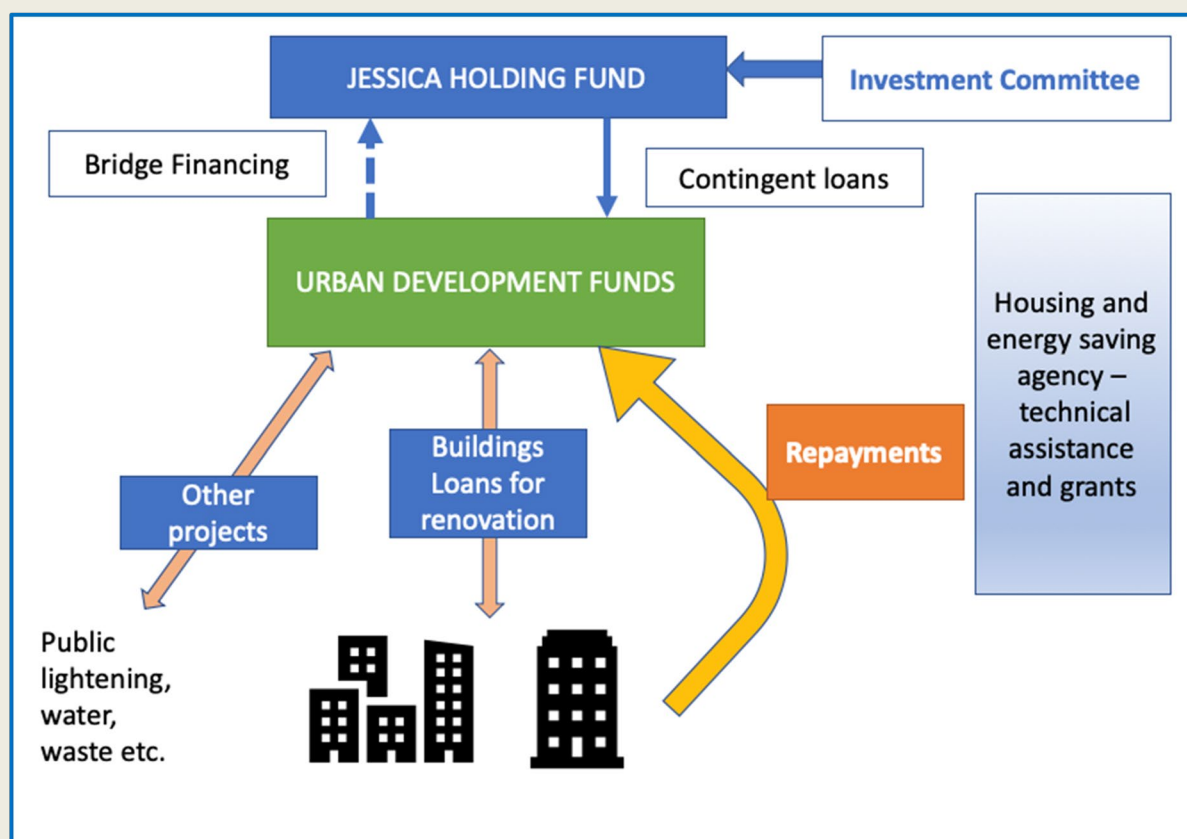
For multi-apartment buildings, the programme offered preferential loans with a fixed (subsidised 3% interest rate) with a 20-year maximum maturity, 2-year grace period and a 15% grant in the form of a write-off for savings above 20% and reaching class D in energy efficiency, 25% for levels above 40%. 100% grants were given for the documentation and low-income families were also fully reimbursed from state funds. To attract private financiers, a leveraged fund was created, i.e. by the holding fund's provision of portfolio guarantee leveraging funds 1:5. Four commercial banks operated as private associated lenders.

While the programme has been successful, the start was slow. One of the main barriers was the lack of an appropriate legal framework to ensure the HoAs could take a decision binding all owners.

The apartment owners did not have well-organised associations. Low-income people benefited from state support and had no incentive to participate in the programme.

Action was required to change the law to ensure a change in behaviour, such as cutting energy subsidies to eligible owners not participating in the decision-making process.

Figure 6. JESSICA Holding Fund and Urban Development Fund (2007-2013)



Source: Author's rendering.

The Lithuanian model was developed with the assistance of the EIB under the EU JESSICA programme, an option not chosen by some countries. According to the review by Infinite Solutions, the costs of running JESSICA were too high. The JESSICA holding fund manages the EU ERDF funds and other donor funds to provide contingent loans to the urban development funds.

HoAs take up the subsidised loans and grants delivered by the fund and the housing and energy agency of the state, then repay the loans to the fund.

It is interesting to note that as the programme matured, the Lithuanian system evolved to one similar to the Estonian Kredex system, where the holding funds are directly channelled through private financial intermediaries.

Information from the EU Energy Poverty Observatory fact sheet and Lee (2016).

### The Lithuanian urban development fund

#### Success factors:

- Creation of a specialised agency can help in preparing more coherent urban regeneration programmes
- Limits the capacity to develop a nationwide scheme due to the limited territorial scope of urban development funds
- Allows for a larger portfolio and risk spread
- Helps designing integrated urban approach.

#### Challenges:

- At the start, the lack of well-organised housing associations slowing down adoption was neglected
- The ability to aggregate a loan for the whole building was inexistent, and with single loans the system is not manageable
- More complex structures
- Larger number of intermediaries increases costs

## 5. Which model for SEE?

There are a number of takeaways from the examples presented above.

The first is that a very careful analysis of the barriers and opportunities of each model for energy efficiency programmes is needed to determine the design of the instruments and any reforms required to avoid disincentives to participate. The EU already requires a detailed ex-ante assessment if EU funding for a financial instrument is involved. This is a complex exercise, often not undertaken correctly, i.e. with too much focus on the detail of the market gap and the business model design, rather than on the qualitative long descriptions of the problem and generic ‘market barrier’ interpretations.<sup>9</sup>

The instruments have proven viable in the Baltic states, which according to Eurostat data have very low energy prices and therefore relatively low returns arising from savings. However, the schemes are working. This holds promise for the SEE countries, where prices are similar.<sup>10</sup>

It is worth noting that the successful schemes seem to be simple, with grants and subsidies intervening separately to the lending by commercial banks (although there might be an interest rate subsidy). The simpler the system, the easier it is to trace and the cheaper it is to run. The fund in Bosnia and Herzegovina is itself based on a system reliant on local commercial banks

<sup>9</sup> A recent analysis of the EU ex-ante assessments identifies problems in the way the ex-ante assessments are designed, more to justify support rather than designing a well-tailored instrument. It is not enough to identify the need for a financial instrument, but show more understanding of how it should work (Núñez Ferrer et al., 2017).

<sup>10</sup> [http://epp.eurostat.ec.europa.eu/statistics\\_explained/index.php/energy\\_price\\_statistics](http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/energy_price_statistics)



and avoiding urban development funds and other intermediary bodies. ESCOs, however, may be a good way forward for programmes that are starting and to facilitate the aggregation and implementation of energy efficiency projects. But once the benefits are tested and the banking sector offers low-interest loans, the existence of complex institutional structures seems redundant.

This analysis suggests that models that require a major government role and involve administrations (e.g. such as energy managers as proposed by BPIE (2016, p 109)) in the renovation of the residential building stock are less suited for SEEs. Public administration efficiency and financial management as well as its capacity to manage funds effectively should not be taken for granted in many countries of South East Europe. Also, on average, municipalities exhibit a very low administrative capacity. The process should be managed by specialised funds or ESCOs.

It seems to be more appropriate to set up a national specialised holding fund, such as the one by Kredex in Estonia, that would offer loans to commercial banks to lend to housing associations and offer grants to the beneficiaries based on achieved savings. ESCOs or databases of technical solutions (like in Bosnia Herzegovina) can help in proposing solutions to beneficiaries. This would limit bureaucracy, reduce the risks of corruption or state capture (important in some of the countries) and ensure more transparency.

The fund could be provisioned by different sources and benefit from guarantees, even guarantees by the Juncker plan if this becomes possible. Also, the sale of carbon allowances or credits from existing white certificates could help in raising more funds.

Another aspect deserving of attention is the deep renovation ambition of the BPIE (2016) report for Bulgaria, which aims much higher in terms of energy savings than the successful programmes in the Baltics. While the proposal advises a stepwise approach, it focuses more on the technical challenges than on the administrative capacity, skill shortage and some of the aspects raised in the World Bank (2017) report, which considers the Bulgarian housing market as presenting the most complex housing problems of the former communist countries with the exception of former states of the Soviet Union. This is due to the artificial planning of heavy industry and residential zones. Trying to implement 'better than the best' solutions to bring buildings to an energy efficiency level of category A in this country may just lead to very little actual adoption.

Thus, before building costly and complex programmes, existing successful processes working on a lean and transparent system should be considered and tested first.

## 6. Way forward, starting simple for large replication

The examples presented in this report give some ideas on the barriers to address and the procedures to establish in establishing effective business models in SEE.

First, an ex-ante assessment is necessary and obligatory according to the Common Provisions Regulation article 37.2 and should cover (author's emphasis):

- a) Analysis of market failures, suboptimal investment situations, and investment needs;
- b) Assessment of the added value of the financial instruments, including state aid implications and proportionality;
- c) Estimate of the additional public and private resources potentially raised by the financial instrument (i.e. the expected leverage), including an assessment of the incentives to attract other funding;
- d) An assessment of lessons learnt from similar instruments and ex-ante assessments carried out by the Member State previously; analysis of the legal framework and incentives for building owners;*
- e) A proposed investment strategy, including an examination of options for products to be offered, recipients to be targeted, etc.;*
- f) A specification of the expected results;
- g) Provisions for a review and updating of the ex-ante assessment

For a functioning financial instrument, it is of paramount importance that the investment strategy is carefully drafted. This is, however, one of the weakest sections in many of the ex-ante assessments for EU financial instruments of the EU structural and investment funds, often resulting from the lack of real specialisation of the assessors.<sup>11</sup> The strategy should be designed to ensure uptake, taking into account the incentives of the beneficiaries, the legal framework and the bankability.

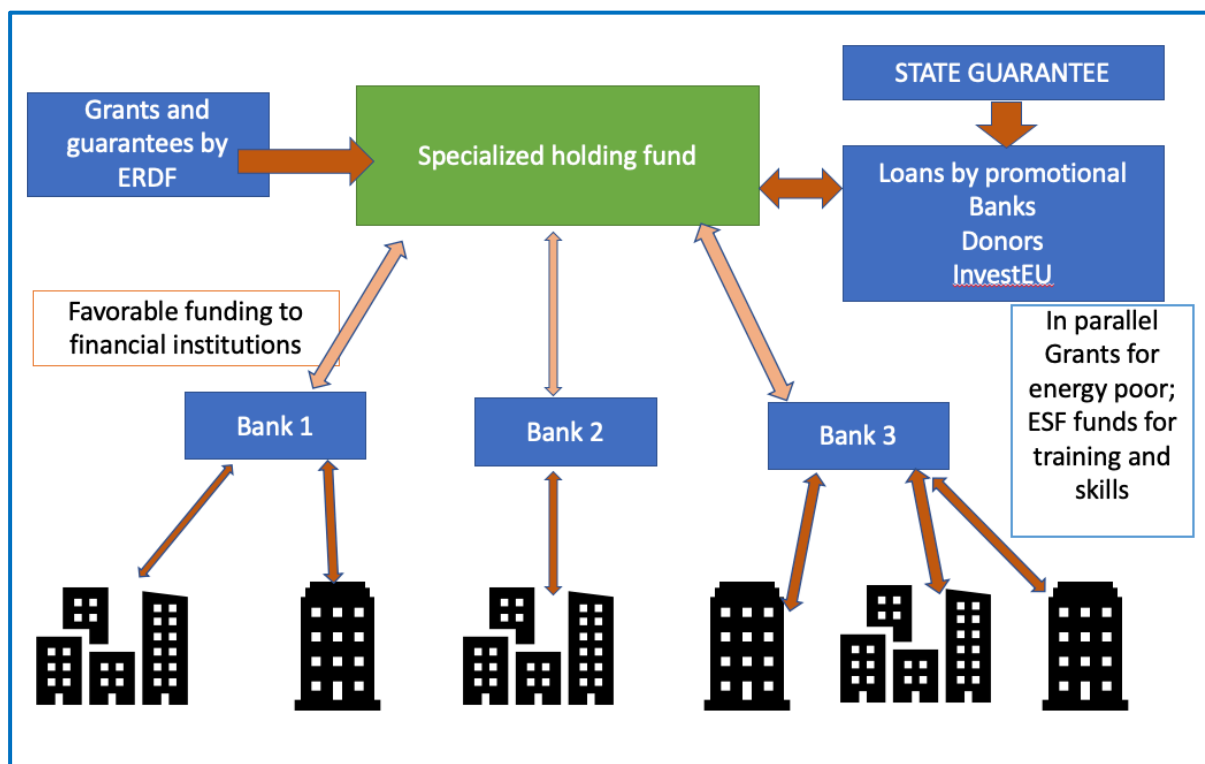
A review of the laws to ensure that housing associations can request loans as a legal entity is of crucial importance for any scheme to be successful.

Figure 6 presents the basic structure of a replicable model for EU member states, which can be replicated in other SEE countries but revising the financial sources. The holding fund can be set up by the WBIF in the non-member Balkan countries.

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<sup>11</sup> Núñez Ferrer et al. (2017).

Figure 7. A basic financial instrument model for SEE (EU member states)



Source: Author's rendering.

This model can be replicated across countries, which then makes it easy to compare impacts and learn from each other.

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