

# Centralised Energy Efficiency Financing Mechanisms:

## Policy guidelines

*Prepared jointly by the European Bank for Reconstruction and Development  
and the Energy Community Secretariat*

July 2020

*With the assistance of*



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## Introduction

Article 7 of the Energy Efficiency Directive 2012/27/EU (the “EED”) plays a central role in the package of measures being delivered by the European Union (EU) to achieve a 20% improvement in energy efficiency (EE) by 2020. The importance of Article 7, which requires Member States (MS) to set quantified energy savings targets for the respective obligation period (2014-2020), has been further reinforced in the revised EED (Directive (EU) 2018/2002 on energy efficiency (“amended EED”) which sets a legislative pathway to 2030 and beyond.

Under Article 7 of the amended EED, EU countries (with **expected forthcoming extension to Energy Community Treaty Contracting Parties**) must achieve a set cumulative end-use energy savings target by 31 December 2030 either through an energy efficiency obligation (EEO) scheme, one or more ‘alternative policy measures’ of the MS’s choice, or a combination of the EEO scheme and alternative policy measures.

The cumulative end-use energy savings obligation for EU countries is equivalent to new yearly energy savings from 2021-2030 of 0.8% of a reference quantity, taken as the annual final energy consumption averaged over the three-year period 2016-2018. The corresponding obligation for Energy Community Contracting Parties is still to be confirmed.

For the 2020 target, EEO schemes are expected to be an important mechanism used

by EU MS to achieve energy savings, contributing a total of 34% of the planned savings<sup>1,2</sup>. The Energy Community Secretariat (ECS) and the EBRD published a policy guideline for designing EEOs in 2019<sup>3</sup>.

The second biggest contributor to energy savings is expected to be delivered through other financing mechanisms, typically implemented by public agencies. There is a long history of central governments around the world providing financial assistance for the undertaking of energy efficiency measures by all end-use sectors. These mechanisms are developed in a variety of guises in order to best tailor their offering to specific target sectors and measures as well as the local environment.

Many MS and Contracting Parties have set up new EE national funds. In parallel, various initiatives, some donor-driven, have been enacted to support other centralised energy efficiency financing mechanisms. However, these developments have tended to be piecemeal and largely uncoordinated as noted in survey responses under the ENSMOV project<sup>4</sup>.

Therefore, best practice guidance on the design and establishment of centralised EE financing mechanisms could be advantageous so that they complement other measures and cost-effectively contribute to energy efficiency targets.

As a financial institution, the EBRD is interested in these mechanisms for the

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[https://ec.europa.eu/energy/sites/ener/files/documents/final\\_report\\_evaluation\\_on\\_implementation\\_art\\_7\\_eed.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/final_report_evaluation_on_implementation_art_7_eed.pdf)

<sup>2</sup> European Commission (2016) “Impact Assessment: Proposal for a Directive of the

European Parliament and of the Council amending Directive 2012/27/EU on Energy Efficiency”

<sup>3</sup> <https://energy-community.org/legal/policy-guidelines.html>

<sup>4</sup> <https://ensmov.eu/report-on-gap-analysis/>

potential to open new financing pathways for EE improvement measures. The ECS, responsible for supporting the implementation of EU internal energy market rules and principles to its Contracting Parties, is interested in the mechanisms as a means for countries to achieve their energy efficiency targets, including through Article 7 and Article 20 obligations of the Energy Efficiency Directive. **Given this common interest as regards in particular Article 7 of the EED, EBRD and ECS have jointly developed these Policy Guidelines to complement the previous guidance on EEO schemes to support countries in their decision as to the most appropriate policy mix for achieving the required end-use energy savings under Article 7 of the EED.**

## 1. Overview of centralised EE financing mechanisms

Energy efficiency financing mechanisms can provide support through a number of routes:

- Upfront or post implementation **grants**
- **Tax relief**, accelerated depreciation and tax rebate schemes
- **Direct loans** with softened conditions (may be complemented by grants) channelled through an **energy efficiency fund**
- **Credit lines** for tied loans from commercial banks
- Providing **financial support via third-parties** such as Energy Service Companies (ESCOs) to deliver energy savings
- Provision of **guarantees** for loans
- **On-bill** financing with softened conditions

Each of the above options aims to **reduce the financial burden** on the end consumer of

implementing an energy efficiency measure as compared to what would be available in the open market.

Each approach seeks to address specific **market failures** that suppress investments occurring in line with an optimal socio-economic outcome. Such market failures differ in intensity between end-use sector, measure complexity and consumer profile. Hence, a well-crafted policy mix will provide cost-effective mitigation for these market failures as appropriate across end-use sectors and consumer types. Measures will complement rather than overlap and mutually reinforce benefits gained.

Financial support alone does not efficiently tackle many market failures and it is vital that the design of any mechanism takes due consideration of other measures such as coordinated **technical assistance and information campaigns**.

A further consideration is the requirement in Article 7 of the amended EED (and an expressed objective of government policy in many countries) to consider in the policy design the need to alleviate **energy poverty**. Centralised energy efficiency financing mechanisms may have a particularly important role to play in this regard.

Aside from the **form of financing mechanism** deployed, schemes can be categorised at the general level by two further policy design features:

- **The funding source:** be this through general taxation, donor funds, energy bill levies, carbon allowance revenues, or other fees and charges levied on consumers.
- **The allocation mechanism:** which may be pre-selected, auctions, multi-

criteria tenders, or on a first-come-first-serve basis.

## 2. Use of centralised EE financing mechanisms for EED compliance in EU MS

### 2.1. Article 7: Energy saving obligation

Centralised energy efficiency financing mechanisms are contributing alternative measures to Article 7 compliance for the majority of EU MS. There are three broad groupings:

- **Centralised loan schemes and/or grants financed by taxation.** While common in number across MS, these are rarely expected to be a primary contributor to Article 7 targets.
- **Centralised loan and/or grant schemes financed through energy tariff levies.** Each of Spain, Slovenia, Belgium and Portugal expect this form of scheme to act as a key contributor towards meeting their Article 7 obligations.
- **Tax relief schemes.** Both Italy and Netherlands expect tax relief schemes to be an important contributing measure for Article 7 targets, albeit with different end-use sector focus. France also makes extensive use of tax relief in combination with its EEO (attributing all savings to the EEO).

Other mechanism forms such as on-bill finance have not been adopted at scale as an alternative measure for meeting Article 7 obligations. However, that may change for the next period as activity moves into deeper, more complex energy efficiency activity.

Some preliminary conclusions based on financing mechanisms deployed by MS for the 2014-2020 period are:

- **On funding:** To achieve scale, supplementary funding sources beyond government budget funds are likely necessary.
- **On mechanism type:** Each MS designs its mechanism based on local circumstances.
- **On allocation mechanism:** Increased interest has been noted in the use of auctions/tenders, though there is no consensus about a commonly preferred option among MS.

MS design their financing mechanisms based on differing objectives, relating to end-use sectors and measures; differences in economic structures, dwelling profiles, and population demographics; differences in climate; and differences in previous experience and expertise.

Despite the uncertainties regarding data by which to compare the true effectiveness of different mechanisms, there have been intensive efforts to improve understanding of best practice design and implementation of financing mechanism types, and this body of work has been used to inform these Policy Guidelines.

### 2.2. Article 20: Energy Efficiency National Fund, Financing and Technical Support

Financing mechanism types may be wrapped in, and provided by, an Energy Efficiency National Fund, which is foreseen by EED Article 20. This article also expressly identifies the option of allowing buy-out to an Energy Efficiency National Fund by Obligated Parties under an EEO scheme. The Fund can then be used to help achieve different results, including Article 5 (public buildings) and Article 7 obligations.

A number of EU MS have followed this suggestion with, for example, the buy-out price set at a fixed rate per kilowatt-hour saved basis. The rate typically aims to reflect the cost to the fund of enacting savings in lieu of achievement by the Obligated Parties.

As funds have multiple objectives other than cost-efficiency, this price is typically higher than the average cost for Obligated Parties to undertake savings directly themselves, effectively setting a ceiling on the price they are willing to pay themselves. This has led to the buy-out option being rarely utilised once a few years' experience has been gained by Obligated Parties. It therefore does not represent a stable and secure revenue stream for a fund unless a degree of buy-out is actually stipulated within the EEO scheme design. As a result, the success of such funds has depended on other revenue sources and been largely independent of the EEO buy-out.

### 3. Status of centralised EE financing mechanisms in Energy Community Contracting Parties

In response to increased political and donor engagement with energy efficiency, many Energy Community Contracting Parties have established, or are in the process of establishing, centralised energy efficiency financing mechanisms. These are complemented by multi-country initiatives supported by International Financing Institutions.

This is summarized in Figure 1 below.

- : Central EE Finance mechanism in operation
- : Central EE Finance mechanism under development
- : IFI supported national EE finance mechanism(s) in operation

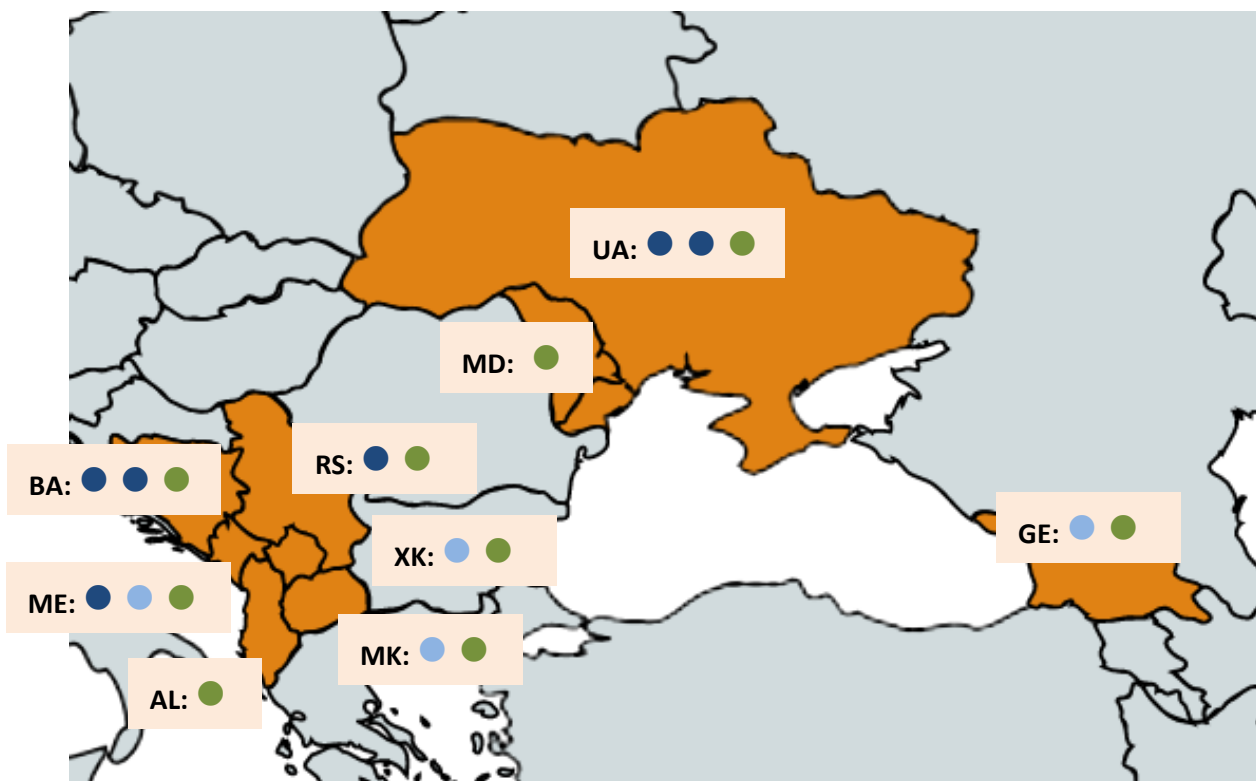


Figure 1: Status of Centralised EE Financing Mechanisms in Energy Community Contracting Parties. See Annex A for further details.

As shown, most Contracting Parties have either established a centralised EE financing mechanism or have legislated for the introduction of one with preparations underway (with various levels of funding commitments).

Where funding commitments are in place, the current or expected size of the funds is sufficient to make them an important but not primary contributor towards Article 7 targets should they be used to support eligible measures.

Activity to date for these mechanisms (designated “funds” and other centralised mechanisms) has generally focused on the public sector although residential programmes have operated in both Ukraine and Montenegro.

In all Contracting Parties, the mechanisms have been complemented by IFI initiatives such as the EBRD’s Green Economy Financing

Facility (GEFF) which has driven activity in the private sector.

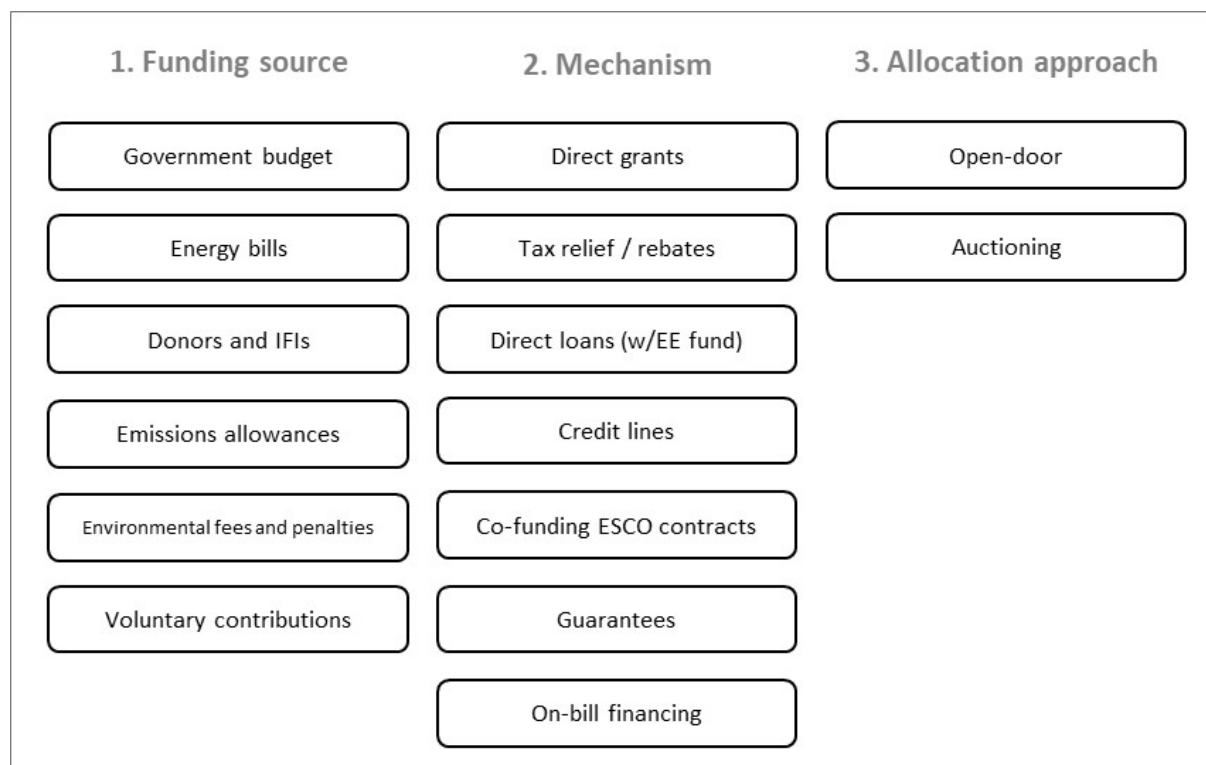
The formative or nascent stage of many relevant centralised EE financing mechanisms across the region highlights the advantage of looking into the possibility to design and implement them in a complementary and cost-efficient manner, however, always taking into consideration local objectives and elements.

#### 4. Key components of centralised EE financing mechanisms

This section discusses the three key components of a centralised energy efficiency financing mechanism: **the funding source, the form of mechanism, and the approach to allocation**. The focus is on the central aspect as this is where greatest diversity of choice lies.

Figure 2 illustrates the scope of primary options within each component.

Figure 2: Financing mechanism components and options



#### 4.1. Component 1: Funding source

The potential scale of energy savings that may be delivered by a particular measure is dependent on a combination of:

- The level of core funding available
- Its ability to leverage additional funds
- Its cost-efficiency

Experience in the EU Member States shows that core funding may be derived from:

- Government budget (may be in-kind grants or loans)
- Energy bills (socialised across bill payers)
- Donors

- The sale of emissions allowances
- Environmental fees and penalties for enterprises
- Voluntary contributions

For the Energy Community, the first three of these are the key contributors. Contracting Parties are not covered by the EU Emissions Trading Scheme (ETS) and hence the sale of emissions allowances is not at present a realistic approach, while environmental fees and voluntary contributions are unlikely to provide necessary scale.

Table 1 below summarises the advantages and disadvantages to funding from the three main sources.

Table 1: Funding sources – advantages and disadvantages

Source	Advantage	Disadvantage
<b>Government budget (general taxation)</b>	<ul style="list-style-type: none"> <li>• Legislatively straightforward</li> <li>• Typically more progressive than energy bill levies due to tax profile</li> <li>• Can be provided as loans</li> </ul>	<ul style="list-style-type: none"> <li>• Impacts on government balance sheet which can restrict ability to scale</li> <li>• Lack of stability and foresight: subject to budget cycles</li> </ul>
<b>Energy bills (socialised across bill payers)</b>	<ul style="list-style-type: none"> <li>• Adheres to “polluter pays” principles</li> <li>• Can have greater stability than general taxation</li> <li>• Easier to achieve scale</li> </ul>	<ul style="list-style-type: none"> <li>• Can be regressive – energy constitutes a larger share of expenditure for low income households</li> <li>• Can be politically controversial</li> <li>• Collection difficult for unregulated fuels</li> </ul>
<b>Donors and IFIs</b>	<ul style="list-style-type: none"> <li>• Government budget neutral</li> <li>• Can draw on expertise of donor regarding successful models implemented elsewhere</li> </ul>	<ul style="list-style-type: none"> <li>• Length of time to mobilize</li> <li>• Usually time-limited with issues regarding sustainability</li> <li>• Risk of bypassing capacity building in country</li> </ul>



Donor contributions can be used to expand the core funds available through either approach, as can any fees or penalties. Any funds from fees and penalties would best be drawn from the energy efficiency or carbon emission spheres (e.g. failure by energy firms to meet energy efficiency obligations).

Dependent on the type of mechanism deployed (see next section), leverage can then be sought from end consumers and commercial lenders.

## **Box 1. Example approaches on funding sources**

### **Slovenia – Eco Fund (Eko Sklad)**

The Slovenian Eco Fund was initially founded in 1994 with a EUR 65,000 allocation from the state budget and included contributions from the privatisation process. Focused on loan provisions in the public sector, the Eco Fund was able to generate its own income and also raised further funding through EU grants and loans from the European Investment Bank and Slovenian Export and Development Bank.

In 2008, in response to the first NEEAP of Slovenia, the fund expanded its offering to grants with an additional funding stream regulated through a levy on energy bills (covering both networked and non-networked energy). From 2014 with the transposition of the EED, the Energy Act of 2014 also introduced an EEO scheme from which suppliers were permitted to buy-out a portion of their obligation through payments to the Eco Fund. Together the EEO and the Eco Fund constitute Slovenia's policy mix for achieving its EED Article 7 obligations with the EEO gradually increasing its relative contribution. Eco Fund levies on bills for electricity and natural gas are paid to the network operator while for other fuel sources they are paid via the retailer.

#### **Sources:**

Eko Sklad, [www.ekosklad.si](http://www.ekosklad.si)

National Energy Efficiency Action Plan 2020 for Slovenia

Concerted Action, EED implementation in Slovenia

OECD Environmental Performance Reviews: Slovenia 2012

### **Slovak Republic - Slovak Energy Efficiency and Renewable Energy Finance Facility (SlovSEFF)**

SlovSEFF is a collaboration between the EBRD, Ministry of Environment of the Slovak Republic and the Ministry of Agriculture, Food and Environment of Spain to provide a EUR 100 Million credit line to Slovak commercial banks for on-lending to renewable energy, industrial energy efficiency and residential energy efficiency projects. Incentive payments are supported via the sale of carbon credits from the Slovak Republic to Spain, assisting the latter to meet its emission reduction targets and representing the first time that such a market-based mechanism has been used to provide donor funding to a sustainable financing facility.

#### **Sources:**

SlovSEFF website, <http://www.slovseff.eu/index.php/en/>

Build Up, <https://www.buildup.eu/en/practices/publications/slovak-sustainable-energy-financing-facility-slovseff>

### **Germany – Step Up! Tender programme**

From 2016 to 2018, Germany ran a pilot competitive tendering regime for energy efficiency named "Step Up!". The scheme had a budget of EUR 300 Million funded by Germany's Energy and Climate Fund which in turn received some funds from the auctioning of EU Emissions Trading Scheme (ETS) allowances. This route was taken as an alternative to an EEO due to a perception of low public acceptance of further energy levies.

#### **Sources:**

Federal Ministry for Economic Affairs and Energy (2017), [www.euagenda.eu/upload/publications/untitled-68967-ea.pdf](http://www.euagenda.eu/upload/publications/untitled-68967-ea.pdf)

## 4.2. Component 2: Mechanism form

As identified in the introduction, an array of financing mechanism support options have been proposed and deployed internationally. The most appropriate form for a particular context will depend upon:

- The end-use sectors of the mechanism targeted

- The nature of the energy efficiency measures (complexity, cost, heterogeneity) being deployed
- The profile of the end consumers being targeted
- The market failures being addressed

Table 2 summarises in general form how the above aspects relate to each other.

Table 2: Relationship between end-use sectors, consumer profiles, measures and market failures

End-use sector	Nature of energy efficiency measures	Consumer profile – differentiating factors	Market failures
<b>Residential</b>	<ul style="list-style-type: none"> <li>• Large volume of common measures</li> <li>• Combination of: <ul style="list-style-type: none"> <li>○ Simple, cheap measures</li> <li>○ Expensive deeper measures</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Owner-occupiers or renters</li> <li>• Single or multi-family homes</li> <li>• Differential income levels</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of information (all)</li> <li>• Access to capital (most onerous for low income)</li> <li>• Split incentives (landlord/renter)</li> <li>• Rules on dealing with common ownership (multi-family homes)</li> <li>• High transaction costs (all)</li> </ul>
<b>Commercial</b>	<ul style="list-style-type: none"> <li>• Similar measures to residential but at greater scale</li> <li>• Ability to aggregate</li> </ul>	<ul style="list-style-type: none"> <li>• Size of enterprise</li> <li>• Nature of enterprise – buildings or transport focused</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of information</li> <li>• Access to capital (more onerous for small enterprises)</li> <li>• High transaction costs (small enterprises)</li> </ul>
<b>Industrial</b>	<ul style="list-style-type: none"> <li>• Some common measures but also bespoke</li> <li>• Complex and costly</li> </ul>	<ul style="list-style-type: none"> <li>• Level of energy intensity</li> <li>• Concentration of entities</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of information</li> <li>• Short investment horizon of decision-makers contrasts long payback period for some measures</li> </ul>
<b>Public</b>	<ul style="list-style-type: none"> <li>• Focused on larger buildings and transport fleets</li> </ul>	<ul style="list-style-type: none"> <li>• Central or local government</li> </ul>	<ul style="list-style-type: none"> <li>• Public procurement rules</li> <li>• Budget cycles and incentives</li> </ul>
<b>Transport</b>	<ul style="list-style-type: none"> <li>• Short-term behavioural (e.g. eco-driving)</li> <li>• Costly (long-term fuel switching and modal shift)</li> </ul>	<ul style="list-style-type: none"> <li>• Fleets or private vehicles</li> <li>• Passenger cars, light or heavy goods vehicles</li> </ul>	<ul style="list-style-type: none"> <li>• Technology lock-in</li> <li>• Lack of information</li> <li>• Access to capital for higher investment cost</li> </ul>

### Framing of end-use sectors and measures for support

The Article 7 policy mix is rarely defined in isolation. Rather most MS have sought to supplement pre-existing initiatives with a new EEO or new alternative measures as necessary. This approach, combined with the disaggregation of policy-making across ministries and departments, restricts the ability to select an “optimal” (from a socio-economic perspective) policy mix in a bottom-up fashion.

Nevertheless, when assessing how new financing mechanisms may complement other existing and planned policies, a systematic approach can be undertaken by identifying the need for support to specific end-use sectors and measures targeted. Such an approach can follow a five-step process:

1. A systematic analysis of end-use energy efficiency potential across the economy.
2. Approximation of the cost curve for identified measures and estimation of the gap between cost-efficient levels of implementation and actual levels.
3. Identification of the market failures preventing uptake by sector and measure.

4. Mapping of existing and planned programmes for addressing the market failures identified.
5. Consideration of “exemplar” and market-maker effects.

Through undertaking this process, a policy-maker can identify where new policy interventions are most required, whether the current policy mix exhibits overlap or gaps in coverage, and what sectors and market failures any new policy should be crafted to target.

### Description of the financial mechanism types

Financial mechanism types are categorised here according to the manner in which the financial burden for investment by the end consumer is supported, as opposed to the institutional or contractual structure and risk allocation. Such mechanisms range from straightforward grant subsidies to more complex approaches such as revolving funds using direct loans, credit lines, loan guarantees and on-bill financing. The most appropriate approach will depend upon the end-use sector, measures, and market failures being targeted. A summary of relative advantages and disadvantages is provided in Table 3.

Table 3: Types of mechanisms, market failures addressed and their advantages and disadvantages

Type of mechanism	Description	Market failures addressed	Advantages	Disadvantages
<b>Direct grants</b>	<ul style="list-style-type: none"> <li>• Subsidy provided directly to reduce investment cost</li> <li>• Normally offered on first-come-first-serve basis for eligible consumers at predefined level</li> </ul>	<ul style="list-style-type: none"> <li>• Access to capital: residential consumers in particular face issues with upfront cost</li> <li>• Risk adverse consumers: accelerating nascent markets</li> </ul>	<ul style="list-style-type: none"> <li>• Good for early stage products where proof of concept is critical to gain consumer buy-in</li> <li>• Have added “emotional impact” for consumers</li> </ul>	<ul style="list-style-type: none"> <li>• Can distort by drawing focus away from lifetime costs</li> <li>• Budgets limit ability to scale</li> <li>• Cost efficiency can be poor through lack of competitive elements (can</li> </ul>

	<ul style="list-style-type: none"> <li>• May be supported by list of accredited products for subsidy</li> </ul>	<ul style="list-style-type: none"> <li>• Grants mitigate for, but do not directly address, other issues such as transaction costs</li> </ul>	<ul style="list-style-type: none"> <li>• Relatively straightforward to set up and operate</li> </ul>	<ul style="list-style-type: none"> <li>• distort supplier markets)</li> </ul>
<b>Tax relief / rebates</b>	<ul style="list-style-type: none"> <li>• Can be provided as credits, reductions, or rebates against tax liabilities</li> <li>• For enterprises also as accelerated depreciation</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to grants although as provided ex-post require cash flow to be managed</li> </ul>	<ul style="list-style-type: none"> <li>• Experience suggests greater stability and ability to scale than for grants</li> <li>• Help embed energy efficiency in decision making for enterprises</li> </ul>	<ul style="list-style-type: none"> <li>• Can be complex to avail and require consumer to have sufficient tax base to offset (unless traded as a credit)</li> <li>• Substantial free rider concerns</li> <li>• Difficult to evaluate owing to lack of systematic data recording</li> </ul>
<b>Direct loans (may be integrated in a revolving EE fund)</b>	<ul style="list-style-type: none"> <li>• Personal or business loans offered by public body on preferential terms to what is available in commercial market</li> <li>• In revolving-fund, repayments used to initiate further projects</li> </ul>	<ul style="list-style-type: none"> <li>• Access to capital: enabling consumers to access necessary investment amount</li> <li>• Capability failures with commercial banking industry lacking knowledge and resources</li> </ul>	<ul style="list-style-type: none"> <li>• Can achieve greater leverage on originating capital than for grants (seeks to be sustainable)</li> <li>• Particularly suited to large, more costly projects</li> </ul>	<ul style="list-style-type: none"> <li>• Consumer still bears risk and may need adequate credit rating → potentially regressive</li> <li>• Can be complex to set up</li> <li>• Terms must be sufficiently attractive to gain uptake → can hamper sustainability</li> </ul>
<b>Credit lines</b>	<ul style="list-style-type: none"> <li>• Provision of tied credit lines to commercial banks for on-lending to consumers</li> <li>• Typically supported by technical assistance to build market and raise awareness</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to direct loans</li> </ul>	<ul style="list-style-type: none"> <li>• Similar to direct loans but seeks specifically to address capability failures within commercial sector and build sustainable lending market</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to scale-up</li> <li>• Needs strong support from information campaigns</li> <li>• Offering must be attractive – consider transaction cost of using an intermediary</li> </ul>
<b>Grant/loan provision for co-</b>	<ul style="list-style-type: none"> <li>• Co-funding (grant or loan) support</li> </ul>	<ul style="list-style-type: none"> <li>• Market-making and exemplar</li> </ul>	<ul style="list-style-type: none"> <li>• Help build sustainable market in</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to apply to residential sector due to</li> </ul>

<b>funding ESCO contracts</b>	specifically for ESCO contracts (often run through tendering competitions for works in public sector)	(notably public sector)	specialised ESCOs <ul style="list-style-type: none"> <li>• Leverage capabilities and private finance</li> <li>• Takes performance risk off consumer (who often lacks knowledge to manage)</li> </ul>	high transaction costs
<b>Guarantees</b>	<ul style="list-style-type: none"> <li>• Can provide a partial guarantee against certain losses set by threshold and share and/or specific triggers (e.g. political or regulatory action)</li> </ul>	<ul style="list-style-type: none"> <li>• Capability failure of commercial banks to assess credit risk of EE projects</li> </ul>	<ul style="list-style-type: none"> <li>• Leverage potential by bringing forward additional lending</li> <li>• Certain risk guarantees (e.g. political risk) best borne by government</li> </ul>	<ul style="list-style-type: none"> <li>• Such contingent liabilities should be suitably managed by government</li> <li>• Does not directly increase capital availability</li> </ul>
<b>On-bill financing</b>	<ul style="list-style-type: none"> <li>• Finance provided by contracted energy utility with repayments included as a line-item on bills (and may be tied to savings achieved)</li> </ul>	<ul style="list-style-type: none"> <li>• Information: by linking costs directly to savings</li> <li>• Improves access to capital: low default rate of energy bills</li> <li>• Can tie to house overcoming split incentives</li> <li>• Low transaction cost (payment of bill is routine)</li> </ul>	<ul style="list-style-type: none"> <li>• Addresses multiple market failures (see left)</li> <li>• Can target commercial model in long-term</li> </ul>	<ul style="list-style-type: none"> <li>• Costly, deeper measures may not be covered solely by savings</li> <li>• Performance risk left with consumer</li> <li>• Concerns over liabilities on house and issues with sale</li> </ul>

### Complementarity and cohesion of financial mechanism types

When selecting an optimum policy mix to meet the Article 7 obligations, consideration should be given as to the complementarity of the policy options selected in a given Contracting Party and whether they are mutually reinforcing, or conversely overlap in application, and thus risk delivering less than the sum of their individual impact.

Overlapping policies can result in double counting of energy savings (which must be

eliminated as required by EED Article 12) and potential over-compensation to recipients. Exclusivity clauses to avoid such “double-dipping” can result in competition between policy mechanisms. A finance mechanism with a defined subsidy offer, for example, can force Obligated Parties within an EEO or tender scheme to raise their incentives to compete for savings, harming overall cost efficiency.

A full discussion on the considerations in designing a policy mix in the context of Article 7 objectives is provided by the EU-

funded ENSPOL project in report D5.1 “Combining of Energy Efficiency Obligations and alternative policies”<sup>5</sup>. This work found that the type of appropriate policy mechanism varied dependent on the cost and

complexity of the technologies being deployed, as well as by the end-use sector targeted. Table 4 provides good-practice examples of packages that have been deployed for specific end-use sectors.

Table 4: Alignment of financial mechanisms by end-use sector

End-use sector	Example package	Notes
<b>Residential</b>	<ul style="list-style-type: none"> <li>• <b>Credit lines</b> through commercial banks or <b>direct loans</b> (from State or dedicated entity) supported by <b>grant incentives</b> and one-stop-shop for technical assistance</li> <li>• <b>Stand-alone grants or tax rebates</b> for technology-specific scheme supported by <b>quality assurance</b> initiative</li> <li>• <b>On-bill finance</b> supported by grants and <b>technical assistance</b></li> <li>• <b>Guarantee mechanisms plus technical assistance</b> for housing associations</li> </ul>	Grant incentives help stimulate market but may be paired back over time, particularly when used in conjunction with loans. For on-bill finance they help bridge any deficit in funding from energy bill savings. Technical support is of benefit in all instances but for stand-alone grants may simply be a database of approved suppliers/products.
<b>Commercial</b>	<ul style="list-style-type: none"> <li>• <b>Credit lines</b> and <b>direct loans</b> with <b>grant incentives</b> as necessary</li> <li>• <b>On-bill finance</b> with or <b>without grant support</b> and <b>technical assistance</b></li> <li>• <b>ESCO arrangement</b></li> <li>• <b>Tax rebates</b> for energy efficiency equipment</li> </ul>	Similar findings to residential sector but with greater emphasis on loans due to higher cost or measures (and thus less emphasis on grants). Simple ESCO models (e.g. lighting-as-a-service) also have track record of successful deployment. Tax rebates can play a role in promoting energy efficiency in finance departments and thus procurement decisions.
<b>Industrial</b>	<ul style="list-style-type: none"> <li>• <b>Credit lines, direct loans</b> and/or <b>guarantees</b> supported by <b>network initiatives</b></li> </ul>	Measures tend to be more complex, costly and bespoke in nature than for residential and commercial. Access to capital also less of an issue and hence loans take predominance over grants. Networking associations can help push standards and share best practice.
<b>Public</b>	<ul style="list-style-type: none"> <li>• Loans and <b>credit lines</b> (from IFIs or a National EE Fund) supported by <b>grant incentives</b> and one-stop-shop for <b>technical assistance</b></li> <li>• Tendering for <b>ESCO contracts</b> supported by government grants</li> </ul>	Intra-governmental coordination between centre and municipalities can ease loan/grant programme from EE Fund. ESCO approach requires supportive regulatory framework over budgeting treatment and model contracts.

<sup>5</sup><http://enspol.eu/sites/default/files/reports/D5.1Combining%20of%20Energy%20Efficiency%20Obligations%20and%20alternative%20policies.pdf>

	<ul style="list-style-type: none"> <li>• Underpinned by <b>public sector targets</b></li> </ul>	Public sector targets may be back-stopped by reward mechanism.
<b>Transport</b>	<ul style="list-style-type: none"> <li>• <b>Grant support</b> (e.g. for electric vehicles)</li> <li>• <b>Tax incentives</b> such as differential tax rate on fuel types</li> <li>• <b>Loans and grants</b> for supporting infrastructure</li> </ul>	Electric vehicle uptake (with high end-use energy efficiency benefit) supported largely by grants and differential tax rates on fuel types.

Loans address more costly technologies, in line with their greater leverage capacity. In the residential, commercial and public sectors, they also support more complex technologies (which tend to correlate with those that are more costly). However, this difference in complexity was not seen in the industrial sector where there is anyhow greater complexity and heterogeneity between energy efficiency technology interventions.

A further finding of the ENSPOL work was that grants and tax rebates/relief were more generally focused on specific technologies than other financing forms. This is in line with their greater role during early adoption of new technologies while loans offer broader support to enable mass adoption.

Lastly, the work cautioned against potential inefficiencies where financial mechanisms overlap and provide support to the same products and target groups. This is because they can double up transaction costs for similar benefit while one element may be superfluous to the consumer's decision-making harming cost-efficiency.

Nevertheless, the various mechanisms described in Table 3 should not be considered necessarily mutually exclusive. Indeed, there are various examples where combinations of mechanisms have been successfully deployed:

- Combination of credit lines and grants with latter intended to stimulate early uptake of former, building more sustainable market. In time grants may be removed.
- Combination of grant or loan with tax rebates whereby knowledge of the existence of one offer has been enhanced through the presence of the other.
- Combinations of on-bill financing and rebates whereby the on-bill savings alone would have required a repayment period unattractively long.

Box 2 below provides a set of international example approaches to different mechanism forms with two further in-depth assessments included in Annex B and Annex C.



## **Box 2. Example approaches on financial mechanism types**

### **Estonia – KredEx Revolving Fund**

The Estonian KredEx Fund has provided financial support for the renovation of multi-apartment buildings as well as for private single-family homes, based upon the successful KfW model applied in Germany. From 2009-2014, Kredex offered preferential loans through commercial financial institutions drawing on structural funds of the EU's European Regional Development Fund (ERDF). From 2014, access to capital was deemed sufficiently developed for the banking sector that the loan scheme was discontinued but Kredex has continued to provide loan guarantees (enabling a loan to be obtained with 10% self-financing) again through intermediaries.

Alongside the loan and loan guarantee schemes, Kredex has also managed the distribution of grants and provision of technical assistance. Following the KfW model, grants are tiered to 15%, 25% and 40% of the cost of renovation based on the depth of renovation being undertaken. Latest figures for 2018 show EUR 36.5 Million grants for reconstruction to apartment associations and local governments and a further EUR 1.7 Million to small residential buildings.

#### **Sources:**

Kredex, [www.kredex.ee](http://www.kredex.ee)

National Energy Efficiency Action Plan of Estonia (2017)

Cityinvest.eu, [www.cityinvest.eu/content/kredex](http://www.cityinvest.eu/content/kredex)

### **Italy – Ecobonus tax deduction scheme**

Tax deduction schemes applying to the energy efficiency renovation of buildings are expected to meet 39% of Italy's Article 7 obligation. The scheme was first introduced in 2007 and is available to private citizens, social housing associations, and companies. Changes made in 2016 enabled the tax relief to be passed to the companies undertaking the works in order to encourage tenants to benefit. The level of relief is graded from 65% to 75% dependent on the depth and extent of renovation with a cap of EUR 40,000 per building unit.

The scheme has been credited by the Italian authorities with significantly boosting the market for energy efficiency measures in the country. However, other analysis has suggested only a minority of installations were actually incentivised by the scheme indicating low additionality.

#### **Sources:**

Italian Energy Efficiency Action Plan (2017)

Alberini A. *et al* (2014), Looking for free riding: energy efficiency incentives and Italian home owners, *Energy Efficiency* 7, 571-590.

### **United States – Kansas HowSmart on-bill finance**

On-bill finance programmes are yet to be widely deployed in Europe with most successful examples being present in the United States.

How\$mart is offered to small commercial and residential commercial electricity and natural gas customers by Midwest Energy. Midwest has around 93,000 customers in central and western Kansas. Since the programme's inception in 2008, over 2,000 projects have been completed amounting to approximately \$12 million of investment. Repayment amount must not exceed 90% of estimated savings and repayment period must be no more than 15 years. Costs above this are met by the customer. Interest rates reported to be in the region of 3% for residential and 4.5% for commercial customers, lowered from market rates due to Midwest having access to low cost public finance.

As with many US States, retail tariffs in Kansas remain subject to regulation. These tariffs are granted a specific exclusion from consumer lending legislation under the Kansas Consumer Credit Code.

**Sources:**

Midwest Energy Inc, [www.mwenergy.com](http://www.mwenergy.com)

Energy Efficiency Institute Inc. PAYS® Status Update 2019, <http://www.eeivt.com/wp-content/uploads/2019/05/2019-PAYS-Status-Updates.pdf>

Mundaca L. and Kloke S. (2018), On-Bill Financing Programs to Support Low-Carbon Energy Technologies: An Agent-Oriented Assessment, *Review of Policy Research Vol 25 Issue 4*, 502-534.

### 4.3. Component 3: Allocation approach

There are two main approaches to selecting recipients of support: open-door and auctioning.

An open-door approach acts on a first-come-first-serve basis and essentially allows any entity which meets the eligibility criteria (e.g. by end-use sector, consumer profile, etc.) to apply directly. Total funds will usually be capped. Funds for successful applications are then disbursed up until the point the total amount is depleted and the programme window closed to new applications.

This approach aligns with having the grant amounts or loan conditions offered set ex-ante and clearly advertised. It is administratively simple if resource intensive and accessible to the smallest of consumers such as individual households.

The key disadvantage of this approach is that it contains no competitive element. The

difficulty in assessing the appropriate level of grant or terms for a loan, risk either over-paying and losing cost-efficiency or under-paying and not receiving sufficient applications. Amendments from learning can be made but there is a lag in the feedback loop that can harm cost-efficiency.

Auctioning (or if conjoined with other criteria – tendering) for support seeks to overcome this barrier through searching for the appropriate support level in a competitive manner. Due to higher transaction costs, it is suitable for larger consumers, or when providing support via intermediaries. For example, a call for grant support to co-fund ESCOs for a specific programme of energy efficiency activity can be undertaken in this manner. Auctions are also more costly and complex for an administrator to run.

Auctions have gained interest in recent years, in part due to their relative flexibility combined with cost effectiveness. Auctioning can be undertaken purely on a cost per

kilowatt-hour saved basis (often split into different funding pots) or on a multi-criteria basis.

Bidders may bid with individual projects (usually a large consumer) or with programmes (i.e. an intermediary who will on-

finance multiple consumers energy efficiency actions). The latter contains greater risk on delivering savings. This is sometimes called 'winner's curse' although such risk can be mitigated through pre-qualification requirements, alignment of processes and bid bonds or no-delivery penalties for winners.

### **Box 3. Example approaches on allocation approaches**

#### **Portugal – Consumption Efficiency Programme Plan (PPEC)**

Portugal has been running tenders for delivery of a programme of energy efficiency measures since 2007. The scheme has been a primary contributor to Portugal’s Article 7 targets, constituting 34% of cumulative savings as of 2017. There are six bidding pots in total with four pots open to all bidders and two specifically excluding electricity utilities from competing. Three of the “all bidders” pots are segregated by focus sector – industry, services and households – with the final pot focused on “intangible” (behavioural) measures. Pots excluding electricity utilities are simply segregated by “tangible” and “intangible” measures with no sectoral disaggregation.

Bid winners are determined on a multi-criteria basis rather than solely via cost efficiency, including risk, bidder experience and alignment with broader national energy policy. A minimum 20% co-financing is required. The programme is run by the Portuguese Energy Services Regulatory Agency (ESRE) with a budget of EUR 11.5 Million per annum in 2017-18. While the design has undergone various iterations, the scheme has shown itself to be both cost-efficient and sustainable through its long duration.

#### **Sources:**

Third National Energy Efficiency Action Plan of Portugal and Annual Reports  
Regulatory Assistance Project  
International Energy Agency (2017), Market-Based Instruments for Energy Efficiency

#### **Ireland – First-come-first-serve grants**

The Sustainable Energy Authority of Ireland (SEAI) operates a suite of exchequer-funded grants for supporting energy efficiency activities in all end-use sectors on an open-door basis. For homes these include itemised grants for insulation, heat pumps and heating controls typically covering around one third of the investment cost. A deep retrofits pilot programme was also operated from 2017 to 2019 providing multi-measure upgrades for 325 homes, taking participant dwellings to a Building Energy Rating “A” standard (primary energy intensity no greater than 75 kWh/m<sup>2</sup>).

SEAI grant schemes have operated successfully alongside Ireland’s EEO scheme, in many cases co-funding participants, particularly in the energy poor sector. The open-door approach helps mitigate the potential for schemes to be regressive (market-based tender mechanisms can encourage a focus on those most able to pay as a means of minimising subsidy cost), as well as tailor support more accurately to the specific objectives of each scheme. The direct connection between the public and public agency also assists in maintaining transparency and public confidence. Nevertheless, issues have been encountered with the timely management of new applications as funding pots have become exhausted.

#### **Sources:**

Sustainable Energy Authority of Ireland, [www.seai.ie/grants/home-energy-grants/insulation-grants/](http://www.seai.ie/grants/home-energy-grants/insulation-grants/)  
Irish Times 15 August 2019, [www.irishtimes.com/news/politics/seai-accepted-applicants-for-defunct-retrofit-scheme-1.3986529](http://www.irishtimes.com/news/politics/seai-accepted-applicants-for-defunct-retrofit-scheme-1.3986529)

## 5. Implementation arrangements

### 5.1. Contractual models

The contractual model employed will affect the distribution of risk, the implications for market development, the scalability of the mechanism, and the complexity from a consumer's perspective.

The main differentiating factors are:

- Whether the consumer contracts directly and solely with the finance mechanism provider (the entity

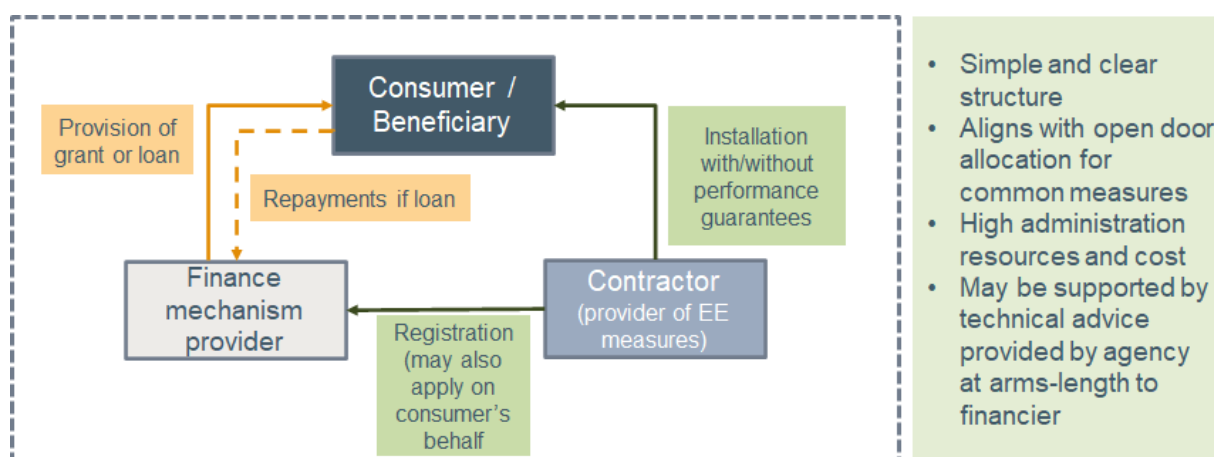
tasked with distributing funds), or whether the consumer contracts with an intermediary.

- Whether the finance mechanism administrator or a third-party selects the projects.
- Whether procurement of energy efficiency is for delivery of individual projects or a portfolio of projects or targeted savings level.

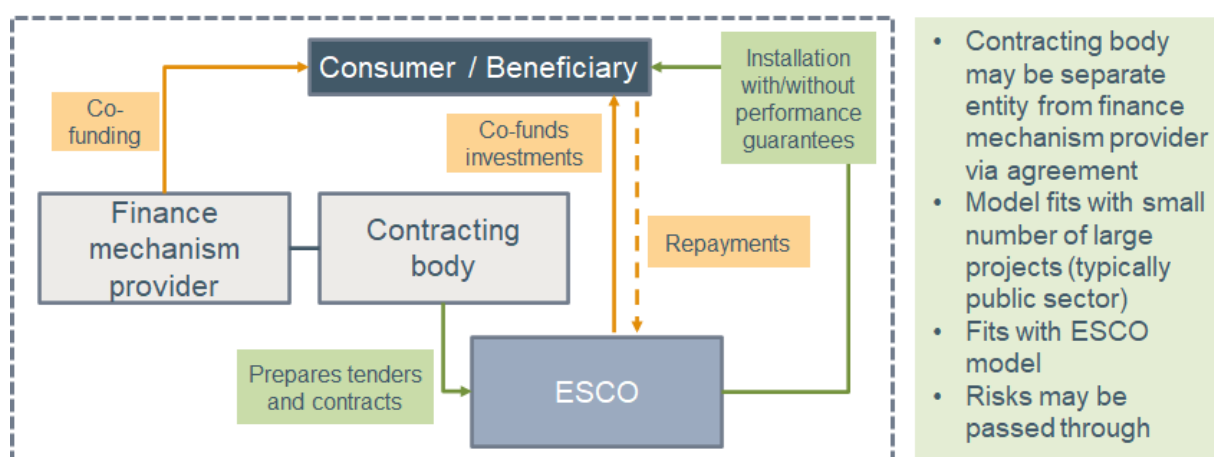
Example approaches are illustrated in Box 4 below.

#### Box 4. Contractual models for Centralised Energy Efficiency Finance Mechanisms

Co-funding through direct grants or loans provided to end consumers:

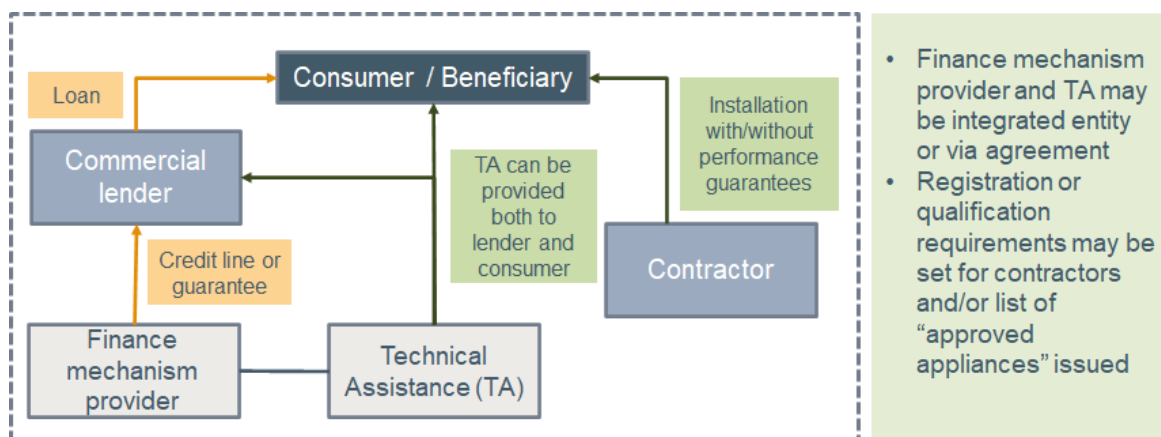


Co-funding combined with tendering and contracting for ESCOs:

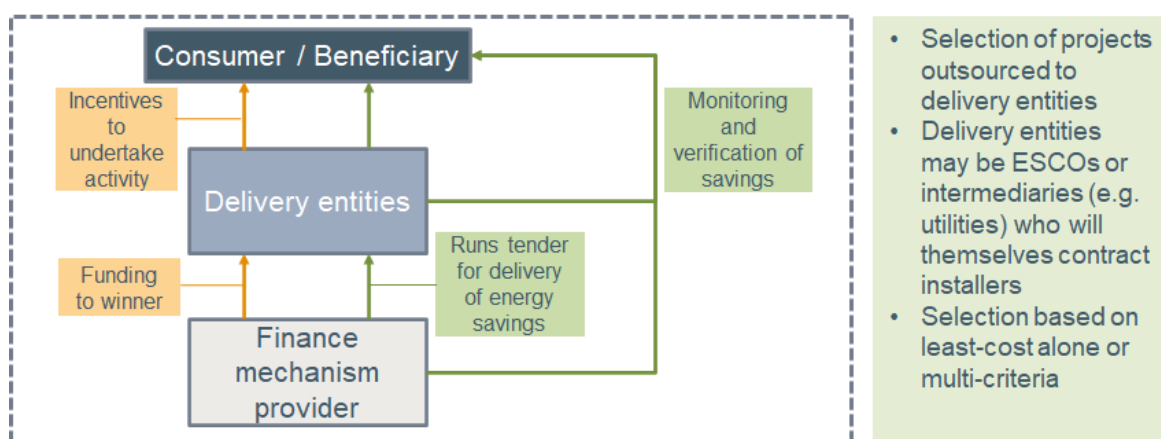


#### Box 4 (continued). Contractual models for Centralised Energy Efficiency Finance Mechanisms

Credit lines or guarantees provided via an intermediary commercial lender (leveraging private sector finance and building market capacity):



Tendering for financial support to intermediary project delivery entities (usually for delivering portfolio of project that are not pre-selected):



### 5.2. Governance and transparency arrangements

Effective and transparent governance arrangements of the financing mechanism are fundamentally important, and can often be the key factor that determines whether a mechanism is a success or a failure. The operational structure for schemes will vary from country to country and as a minimum must meet prevailing legislative requirements for management of public funds in a particular country (see case studies in the annexes for examples of specific operational structures).

Nonetheless, some general good-practice governance considerations apply to all types of operational structures. In summary, these are:

- **Clear, comprehensive and robust legal and regulatory basis for the scheme:** Provides operating mandate of the entity in charge of the scheme, fundamental for scheme stability, sustainability and transparency. It should outline the entity’s objectives, governance and management structures, code of practice, and

funding structures. This provides stability and transparency. The legislation may describe membership of a supervisory board tasked with selecting senior executive position(s) and regulating operations. For example, for the VIPA scheme in Lithuania (Annex D), legislation requires the supervisory board to have a representative from Government, a representative from the Ministry of Finance, and three independent members.

- **Decision making:** Transparent and effective mechanisms when engaging with investors are important to build confidence.
- **Conflicts of interest:** Effective mechanisms to ensure scheme managers have clear procedures to highlight and manage conflicts of interest in the best interests of the investors.
- **Environmental and Social Governance (ESG) Policy:** A strong ESG policy setting out, committing to and being accountable for ensuring positive environmental impact and upholding principles of human rights, cultural diversity and social cohesion.
- **Communication and public consultation:** Regular reporting to high accounting standards with mechanisms for oversight and independent scrutiny. Public consultation processes – both as part of the mechanism design and during the operation of the mechanism. For example, during the scheme design phase, stakeholder workshops or

working groups can be used to test emerging thinking, gain buy-in, and garner useful knowledge and input for refining scheme designs to ensure they take into due consideration all beneficiaries and affected parties.

- **Management oversight:** Setting appropriate performance targets with reference to applicable regulatory framework and with appropriate mechanisms for remedy to fairly address underperformance.
- **Monitoring, verification, and evaluation (MVE).** Transparency is important to eliminate any suspicion of corrupt practices or misappropriation of funds. Third-party MVE is one option to provide an independent assessment of programme performance as against expectations. Publication of statistics on programme performance should be undertaken periodically (usually annually). MVE protocols should stipulate the approach to undertaking inspections of a designated sample of projects, outlining recourse where issues are found. Internal procedures may also usefully be developed to investigate alleged infringements by staff or contractors.

### 5.3. Implementation considerations for Energy Community Contracting Parties

The experience of Energy Community Contracting Parties with Centralised Energy Efficiency Financing Mechanisms was discussed with regional ministry officials in a workshop<sup>6</sup> to support the development of

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<sup>6</sup> The workshop was held on 12 March 2021 in Vienna as part of the Energy Community

Secretariat's Energy Efficiency Coordination Group (EECG)

these Guidelines. Key challenges noted by participants were:

- **A lack of capacity** (technical and financial) within public entities for establishing and administering a scheme.
- **A lack of market interest and awareness** regarding costs and benefits (stemming from newness of many concepts).
- **Duplication of initiatives** – funds have sometimes retrodden ground established through donor mechanisms.
- **Coordination of stakeholders** – between donors, central government and local government as well as with other political considerations.
- **Complex processes** for accessing funds discouraging consumers from applications.
- Accounting challenges to manage limits on **public sector debt**.
- **Lack of sustainability** in terms of subsidy commitments and human capacity availability.

While not unique to the Energy Community, many of these challenges are particularly pressing in the region when compared to most European Union MS.

## 6. Recommendations

Based on a review of relevant literature, workshop feedback and experiences of the consultant team, Contracting Parties are recommended to consider the following when selecting, designing and implementing a new centralized EE finance scheme:

**Be clear on the scheme’s objectives and how these fit in wider national energy efficiency strategy:**

Section 4.2 outlines a five-step process for systemically assessing where interventions are most required and where gaps in the policy framework exist. The rationale for establishing a finance scheme with specific end-use sectors and measures must be clearly outlined with respect to this assessment in order to ensure resources are being deployed in a manner that will optimise the socio-economic benefit for the country in question. Doing so will help avoid an imbalance of support to specific consumers and duplication of initiatives.

### **Ensure the mechanism adopted addresses the market failures identified:**

The form of support needs to be appropriate for the end-use sector and measures targeted, and the market failures that are being addressed. For example, if seeking to move activity towards deeper renovations, then loans – which are better suited to more costly and complex measures through leveraging access to capital - will become more important for the residential sector as opposed to grants.

### **Ensure effective and transparent governance arrangements are in place:**

Good governance will significantly increase the likelihood of a scheme being successful in achieving its ambitions. Good governance entails a robust regulatory basis for the scheme, transparent and effective decision making mechanisms, clear procedures to manage conflicts of interests, adopting a strong ESG policy, good communication and public consultations, putting in a clear and fair framework for management oversight, and adopting robust MVE practices.



**Consider interaction with other regulations and policy initiatives:**

In many instances finance mechanisms alone will be insufficient at driving wholesale market transformation. Ecodesign requirements for appliances can set a baseline to ensure highly inefficient products are excluded from the marketplace while energy labelling and financial incentives work in tandem to encourage uptake of products above and beyond minimum levels.

**Ensure sufficient technical assistance is available:**

Successful financing mechanism schemes have frequently been delivered with coordinated technical assistance. Such assistance can be in project preparation and for monitoring purposes. This helps bridge knowledge gaps for consumers and improve the quality of applications. Where project size does not justify the cost of external technical assistance (e.g. single measure grants for residential consumers), a database of quality assured providers or products may be used.

**Consider scale of scheme when defining objectives:**

The level of financial resources for centralised energy efficiency financing mechanisms is often limited, particularly when revenue is not drawn from energy bills. Its usefulness as an incentive for mass adoption is therefore restricted when compared to an EEO scheme. In such circumstances, setting more specialised objectives such as pilot projects in newer energy efficiency technologies, or a narrower focus on low income households, may be appropriate.

**Leverage regional experience and capacity:**

Neighbouring countries often face similar challenges including issues of adequate capacity. Regional programmes such as the EBRD's Green Economy Financing Facility (GEFF) demonstrate how a proven model can be replicated across multiple countries, saving on resources for establishment and inefficiencies in the learning phase. It is necessary, however, to consider national characteristics and objectives. Regional workshops to share experiences and information on approaches can contribute to this effort.

**Keep it simple and respond to market demand:**

Complexity increases the administrative burden, lowers market interest and makes it difficult for consumers to access the incentives offered. Keeping it simple by making eligibility easy to prove, the application process transparent and clear, and a single point of contact can help greatly in encouraging uptake. Market interest will be further enhanced by gauging demand from both suppliers and consumers prior to establishment through surveys, stakeholder workshops and pilot programmes.

**If involving private sector, maximise leverage potential:**

Many finance mechanisms seek to stimulate new markets in energy efficiency. This can be through acting as an exemplar or co-opting the private sector in delivery. The broader such leverage can be achieved, the more significant the market-making effect will be and the greater the scalability of the mechanism. It also helps build a sustainable industry providing a potential future exit strategy for public funds from certain areas (although the stickiness of certain market

failures demand realism when considering a withdrawal of public support).

**Don't forget importance of M&V:**

M&V remains a key pillar both for assessing compliance with Article 7 obligations and for ensuring the financing mechanism is truly delivering on its objectives. This is particularly important where third parties are the delivery entities and no direct contract is established

between the beneficiary and public administrator. In these circumstances the scheme may benefit from: good quality guidance documentation regarding scheme operation and M&V obligations and processes; simplified calculation processes (e.g. through establishing a list of common measures with deemed energy savings); and supporting IT systems.

## **Acknowledgements**

These Guidelines have been jointly prepared by the Energy Community Secretariat and the European Bank for Reconstruction and Development, with assistance from Economic Consulting Associates and the Regulatory Assistance Project. The preparation of these Guidelines has benefitted from inputs and reviews from a number of individuals and organisations. We are grateful to those who provided such input including participants in a workshop held in Vienna in March 2020. Many of them devoted considerable time and expertise to help us shape our views on different parts of the Guidelines. Responsibility for the content of this document lies only with the ECS and EBRD.

## ANNEX A: Overview of Centralised Energy Efficiency Financing Mechanisms in Energy Community Contracting Parties

	Country	Name of mechanism	Type/sector	Brief description
National schemes	Bosnia & Herzegovina	Bosnia Energy Efficiency Project	Public sector	Total planned investments over the next three years of USD 19 Million in the Federation BiH and USD 13 Million in the Republic of Srpska. Funds are awarded to local institutions in the form of grants, and the credit liability to the World Bank rests with Bosnia and Herzegovina. The funds were sourced from the World Bank and are earmarked for energy efficiency improvements in public buildings in the healthcare and education sector.
		Funds for Environmental Protection (and energy efficiency)	Public buildings (also private buildings in FBiH)	Entity level funds:  <b>Federation BiH:</b> Revolving fund with loans placed via public calls. Currently operational with dedicated budgets determined annually including for revolving fund for EE measures.  <b>Republika Srpska:</b> Grant projects for public buildings. Not available for private buildings.
	Kosovo <sup>*7</sup>	Kosovo Energy Efficiency Fund	Public sector (may be extended to residential sector)	Established as a separate legal entity but yet to commence first tender (April 2020). Funded by EU, World Bank and Government of Kosovo (total EUR 16 Million). Disbursements will be made through tender rounds. Initial focus expected to be schools, hospitals and other public municipality buildings.
	Montenegro	Energy Efficiency Home	Residential sector	The Energy Efficiency Home programme is administered by the Ministry of Economy. The Ministry provides loans via its partner commercial banks who in turn transfer the approved amount to the dealer or installer. The dealers or installers also maintain the heating systems while the customer repays the loan to the bank in monthly instalments.
		Environmental Protection Fund	All sectors	Established with inter-ministerial support as a limited liability company in 2018. Funding mechanisms are expected to be a mix of direct loans, grants and subsidised loans stretching across environmental issues including energy efficiency.
		Montenegro Energy	Public sector	With loan finance from IBRD and KfW respectively, these programmes aim at improving energy efficiency in public buildings including schools and hospitals.

<sup>7</sup> Throughout this document, this designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence.

		Efficiency Project and Energy Efficiency Programme		
	North Macedonia	Energy Efficiency Project	Public sector	Direct loans (80%) and grants (20%) to municipalities. Funding channelled through the Ministry of Finance to which the municipalities may apply. Total funding expected to be EUR 10.5 Million. No funds have been disbursed yet.
		Energy Efficiency Fund	Public sector (possible future expansion)	Mix of direct loans, on-bill financing. Donors to be main funders at start but commercial financing expected to follow. The World Bank will provide EUR 5 Million funding, the EU/EC has expressed interest as have other donors. Nothing disbursed yet (April 2020).
	Serbia	Budget Fund for Energy Efficiency	Public sector (planned expansion to residential sector)	Since 2014, the Ministry of Mining and Energy has operated periodic public calls for tender to support the implementation of energy efficiency measures in the public sector (municipalities). The fund is allocated from the central budget of the Government of Serbia. As of 2019, an energy efficiency levy has been introduced on energy bills. While revenues drawn from this levy are not directly hypothecated for supporting the Budget Fund for Energy Efficiency, the application of the levy is expected to support the growth in the size of the funds to be allocated.
	Ukraine	Energy Efficiency Fund	Residential sector	Set up in 2018 with donor funding from EU and Germany, supplemented by government budget funds, totalling a targeted budget of approximately EUR 200 Million between 2020 and 2022.
		Warm Loans programme	Residential sector	In operation since 2010, in the 4 years prior to publication of the 2 <sup>nd</sup> NEEAP in December 2019 estimated to have supported energy efficiency measures in 500,000 homes for approximately EUR 230 Million of investments of which EUR 80 Million was reimbursed by government.
<b>Example regional schemes</b>	Green Energy Financing Facility (GEFF)		Residential and commercial sectors	Offers capital for on-lending by local financial institutions. Supported by technical assistance and combined with incentives to stimulate the market. GEFF operates in 26 countries with more than 140 local financial institutions and is supported by more than EUR 4 Billion of EBRD finance.
	Green for Growth Fund		Public, residential and commercial sectors	Initiated by the European Investment Bank and KfW with funding from a variety of international public and private organisations. The fund provides credit lines to financial institutions in Southeast Europe and in the Middle East and North Africa (MENA) for on-lending to private households, homeowners associations, businesses, municipalities and public sector entities to finance energy efficiency measures and renewable energy projects.

Sources: National Energy Efficiency Action Plans and Annual Reports of Contracting Parties and programme webpages

## ANNEX B: Case study – the Bulgarian Energy Efficiency and Renewable Sources Fund

The Bulgarian Energy Efficiency and Renewable Sources Fund (EERSF) has been in operation since 2005 providing a consistent and sustainable financing facility for energy efficiency projects in the country on a commercial basis. Its duration, scope and generally well-regarded objectives and structure make it a useful case study for these Guidelines.

1. Funding source	2. Mechanism	3. Allocation approach
Government budget	Direct grants	Open-door
Energy bills	Tax relief / rebates	Auctioning
Donors and IFIs	Direct loans (w/EE fund)	
Emissions allowances	Credit lines	
Environmental fees and penalties	Co-funding ESCO contracts	
Voluntary contributions	Guarantees	
	On-bill financing	

### Rationale for creation and objectives of facility

The EERSF was created in response to Bulgaria’s Energy Efficiency Act (EEA) 2004, which formed part of Bulgaria’s efforts as a new Member State to align with the relevant European directives at the time as well as address Bulgaria’s very high levels of energy intensity. Substantial energy saving potential had been noted across all sectors of the economy despite significant cost-efficient scope for energy efficiency measures. Key constraints in the commercial banking network were identified as contributing to this market failure:

- A small, relatively undeveloped domestic commercial banking market lacked competition;
- Unfamiliarity with energy efficiency projects and a lack of skills to assess them;
- High transaction costs due to the small project size rendering energy efficiency propositions unattractive;
- A lack of skills to assess the credit risk of borrowers;
- A lack of information available regarding energy efficiency technologies and effectiveness; and
- A lack of an energy services market and experience with energy performance contracting.

The EERSF was devised to address these issues by acting as a market-maker, market exemplar, and market player. Its primary objective was, and remains, “to finance and guarantee energy efficiency and renewable energy projects under competitive conditions and [providing] expert technical assistance”.

## Product offerings and operational structure

The EERSF was set up as an independent legal entity and perform its activities within the scope of the EEA, the “Regulations on the Operation and Organisation of the Activities of Energy Efficiency and Renewable Sources Fund”, and agreements with the major donors. The management board designated by these regulations consists of 11 members including the EERSF’s Executive Director, 4 members drawn from key ministries, and 6 representatives elected by the “Donors Assembly”.

Initial capitalisation and set-up costs for the fund were provided by the IBRD’s Global Environment Facility (GEF) with a USD 10 Million grant, supplemented by the Government of Austria (EUR 1.5 Million), the Bulgarian Government (EUR 1.5 Million) and private Bulgarian donors (totalling BGN 453,000). This places the size of the EERSF at a similar level to proposed or operational schemes in a number of Energy Community Contracting Parties.

The Fund Manager was selected through a tender process and awarded to a consortium of three firms including a Bulgarian financial (non-banking) institute, a Bulgarian non-governmental organisation and a Canadian consulting firm. The Fund Manager is tasked with operating the fund on a commercial basis, undertaking all day-to-day operations. It consists of six people; the Executive Director, a Financial and Credit Analyst, two Technical Energy Efficiency Experts, a Chief Accountant and an Office Manager.

The EERSF offers direct loan financing to Municipalities, Corporate clients and individuals (although this latter category has not constituted a sizeable share of recipients to date). Loans are for a maximum tenor of 7 years and currently priced at 4% to 7% for financing of BGN 27,000 to BGN 800,000 and 3.5% to 5.5% for loans of BGN 800,000 to BGN 2.7 Million. Beneficiaries must contribute at least 10% apart from in cases of bridge financing or EU programmes. Partial credit guarantees are provided for portfolios to both ESCOs and directly to households within multi-apartment buildings. These are offered at rates of 0.5% - 2% for tenors of up to 7 years. At least 50% of the economic benefits of all projects in receipt of support must be associated with energy efficiency and all projects subject to energy audit.

The EERSF will also purchase receivables from ESCO projects to help maintain their liquidity, co-finance projects with other banks and grant programmes, and give technical support to projects.

## Results and lessons learnt

Total annual savings as of December 2017 were claimed to be 121 GWh with loans totalling BGN 58.9 Million having been disbursed together with guarantees covering a further BGN 4.4 Million (slides). Clients have been split: 53% municipalities, 35% corporate clients, and 12% other (including hospitals and universities).

The long duration of the EERSF is testimony to its success and the structure is frequently cited as a positive case study in innovative energy efficiency financing. Some of this success may be attributed to its design being structured in response to specific needs identified in the local market. In particular, it was designed to meet market failures identified in the Bulgarian commercial banking sector preventing economically attractive energy efficiency activity being realised.

After its establishment, faster than expected developments in the commercial banking sector, together with new government policies and parallel initiatives by IFIs and donors, mitigated some of the initial market failures identified. The EERSF responded by identifying niche demand areas and developing innovative products in response – these included its portfolio guarantee and liquidity support to ESCOs, its purchase of receivables, and its guarantee scheme for the residential blocks. It has also proven an important provider of finance for local authorities. Such flexibility to changing market conditions has been cited as being vital to its continued existence and success.

The success in supporting both local authorities and multi-apartment buildings has been assisted by parallel improvements in the legislative framework.

## Bibliography

EERSF Website (Accessed April 2020): <https://www.bgeef.com/en/>

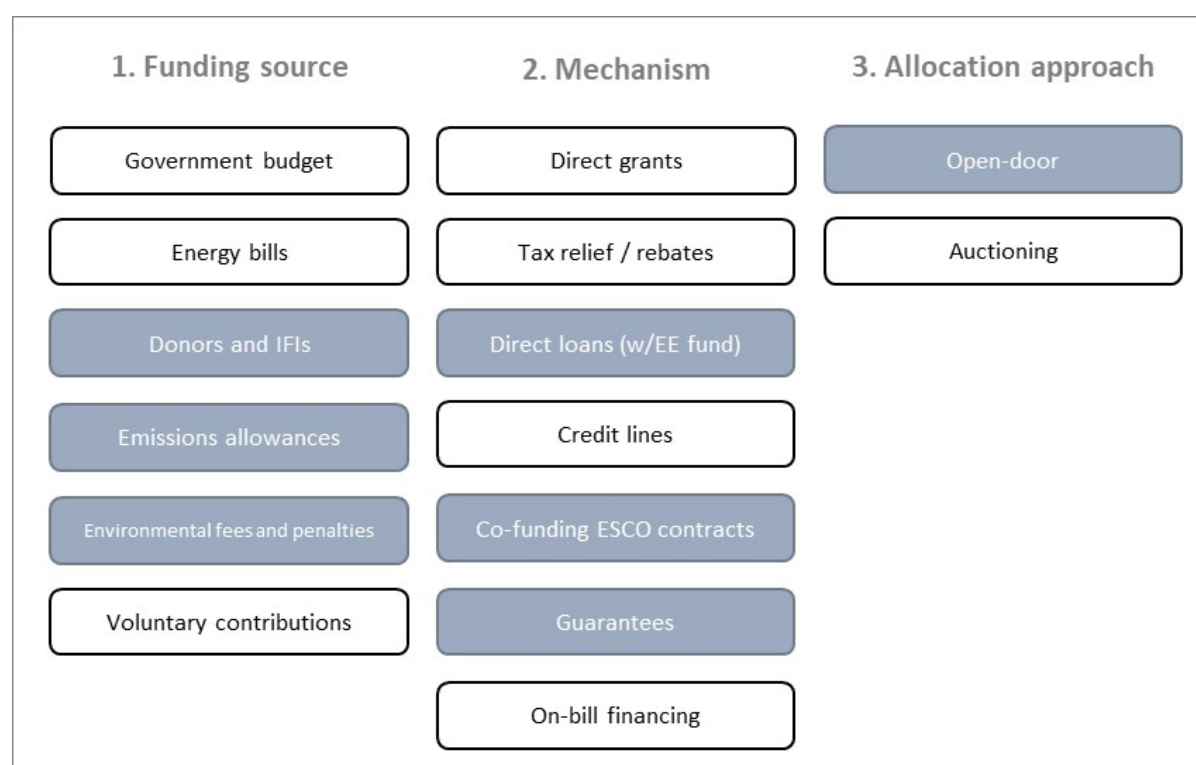
EERSF (2018), Presentation provided to consultants

CityNVest (Accessed April 2020): <http://www.citynvest.eu/content/eerfs>

World Bank (2013), *Unlocking Commercial Financing for Clean Energy in East Asia*, p 251:259, [https://elibrary.worldbank.org/doi/pdf/10.1596/9781464800207\\_Ch19](https://elibrary.worldbank.org/doi/pdf/10.1596/9781464800207_Ch19)

## ANNEX C: Case study - Croatian programme of energy renovation of public buildings and support for multi-apartment buildings

In 2012, Croatia launched its first programme of energy renovation of public buildings with the aim of facilitating a practical business model for building renovation through ESCOs. The programme was initially implemented as a pilot project, from which experiences were to refine subsequent fully-fledged programme phases for the periods 2012-2016 and 2016-2020. The programme is deemed to have been a success in enabling the emergence of new entrants to the ESCO market with significant investment levels and relatively low administrative burden. It worked in tandem with Croatia's Environmental Protection and Energy Efficiency Fund (EPEEF), enabling efficient deployment of the available finances. The EPEEF provided grants both in support of the pilot programme for ESCOs and separately for the renovation of multi-apartment buildings.



### Rationale for creation and objectives of facility

The Croatian authorities were aware that public funds alone would be insufficient for achieving the goals set out through transposition of the EED. The aim of the programme was therefore to bring forward private sector investment via ESCOs as well as leverage EU funds via grant schemes.

Key issues that the programme sought to deal with related primarily to the lack of a regulatory framework and applicable experience for the implementation of the ESCO business model in Croatia. This included:

- Absence of an administrative structure for implementation;



- Need to standardise Energy Performance Contracts to provide confidence to building owners and ESCOs;
- The framework governing public procurement for Energy Performance Contracts;
- Procedures for measurement and verification of energy savings;
- Budgetary rules for Energy Performance Contracting;
- A lack of financing instruments and grants to support Energy Performance Contract investors (namely ESCOs); and
- A lack of experience with implementation of Energy Performance Contracts.

The programme was implemented with funding from the EPEEF, a pre-existing fund that acts as „the central point for collecting and investing extra budgetary resources in the programmes and projects of environmental and nature protection, energy efficiency and use of renewable energy sources“<sup>8</sup>. The EPEEF is resourced through revenues drawn from EU ETS allowances and other environmental charges including those for vehicle registration.

### Programme establishment

Data collected from an energy management information system implemented in public buildings through a UNDP project were used to identify buildings with high energy saving potential as part of the programme's development.

The programme was initially designed as a policy document for implementation of pilot projects, whereas in later versions, experiences from implementation of the pilot projects were used to improve the legislative and regulatory framework. This involved additions within the Law on Energy Efficiency as well as drafting further secondary legislation and supporting instruments including:

- Decree on Energy Performance Contracting and implementation for public buildings;
- Ordinance on Measurement and Verification of Energy Savings;
- Ordinance on Energy Management System for public buildings; and
- Model Energy Performance Contract.

A number of details were dealt with within the programme, which itself was passed as a government decision, providing adequate interpretation of existing regulatory framework for its implementation.

### Programme design and operational structure

Key issues and barriers faced were dealt with by standardising the procedures for implementation of Energy Performance Contracts, using the following principles:

- APN, a government agency for real estate was appointed to implement the programme.
- A model Energy Performance Contract was made publicly available to ensure that risks and rewards of the investment remain with the ESCO, and building owners pay only undisputed

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<sup>8</sup> [http://www.fzoeu.hr/en/about\\_us/activities\\_of\\_the\\_fund/](http://www.fzoeu.hr/en/about_us/activities_of_the_fund/)

savings achieved, after verification on a public platform. Definitions were provided in the Law on Energy Efficiency, ensuring the regulatory environment to support this basic relation.

- Public procurement is defined by the Law on Energy Efficiency as open procurement procedures, and a standardised Request for Proposals was defined by the programme. The main criteria used is the level of guaranteed savings to be achieved compared to payments to be made within 14 years of execution (which cannot exceed the value of guaranteed savings), but the detailed design is delivered after contracting the EPC, and it is verified by an independent community of experts.
- Measurement and verification of energy savings is done by implementation of algorithms for energy savings calculations, and data are input on a web-based platform operated by a public authority. Data are input by ESCOs' authorised engineers, and evidence to be provided is defined in the Ordinance on measurement and verification of energy savings. The platform is used also for settlement of disputes – building owners can at any time dispute energy savings by means of providing the equivalent evidence to the evidence provided by the ESCO. This ensures confidence for both parties to the contract – if execution of contracts is in line with the verified design, ESCOs can count on avoiding non substantiated disputes. At the same time, building owners can dispute savings at any time, and stop the payments for energy savings. Both sides must provide evidence from authorised independent experts, which by existing regulation must provide professional indemnity insurance policy covering potential damages to each side.
- Budgetary rules were defined in a Decree on Energy Performance Contracting for public buildings, defining budgetary lines for payments according to Energy Performance Contracts. Payments are defined as utility costs, removing doubts on budgetary restrictions and authorisation for payments.
- Financing Energy Performance Contracting has been implemented by using funds from the EPEEF for grants (40% investment) and ESCOs have been able to mobilise finance sources backed by the European Fund for Strategic Investment (EFSI) guarantee, which have been available to the Croatian market. EPEEF also manages the dissemination of funding from ESRI's Operational Programme Competitiveness and Cohesion (OPCC). However, to date these have only been used for the parallel programme on the renovation of multi-apartment buildings and not for the ESCO programme, due to a lack of capacity within the public authorities for managing the processes.
- APN (and formally the erstwhile National Energy Efficiency Authority, CEI) has provided capacity building for ESCOs, public authorities and experts since 2012 on a regular basis, building up a significant level of market and institutional awareness, sufficient for further implementation of the programme.

Crucial to implementation was the example of the first large renovation constituting a hospital in Križine. Within this project, the time from launch of the RFP to completion was 13 months. Savings are being achieved at a level of 55.3% as compared to a baseline scenario. Successful delivery of this project was central in gaining market and stakeholder confidence in the ESCO business model for public buildings.

Alongside the ESCO programme, a grant support mechanism for the renovation of multiapartment buildings was launched in 2016 using funding from OPCC managed by EPEEF, with building owners as investors. The renovation of buildings for energy savings (“energy renovation”), according to Law on Energy Efficiency, can be contracted by a simple majority of building owners. Grants were delivered at a rate of 60% of costs, and 900.000 square meters of heated floor areas were contracted for renovation via this call.

## Lessons learnt

The programme demonstrated that implementation of energy efficiency investments in buildings depends on a complete and detailed regulatory framework to underpin investments and appropriate allocation of risks. For Croatia, this enabled successful implementation for both the ESCO programme and the grant scheme for building owners.

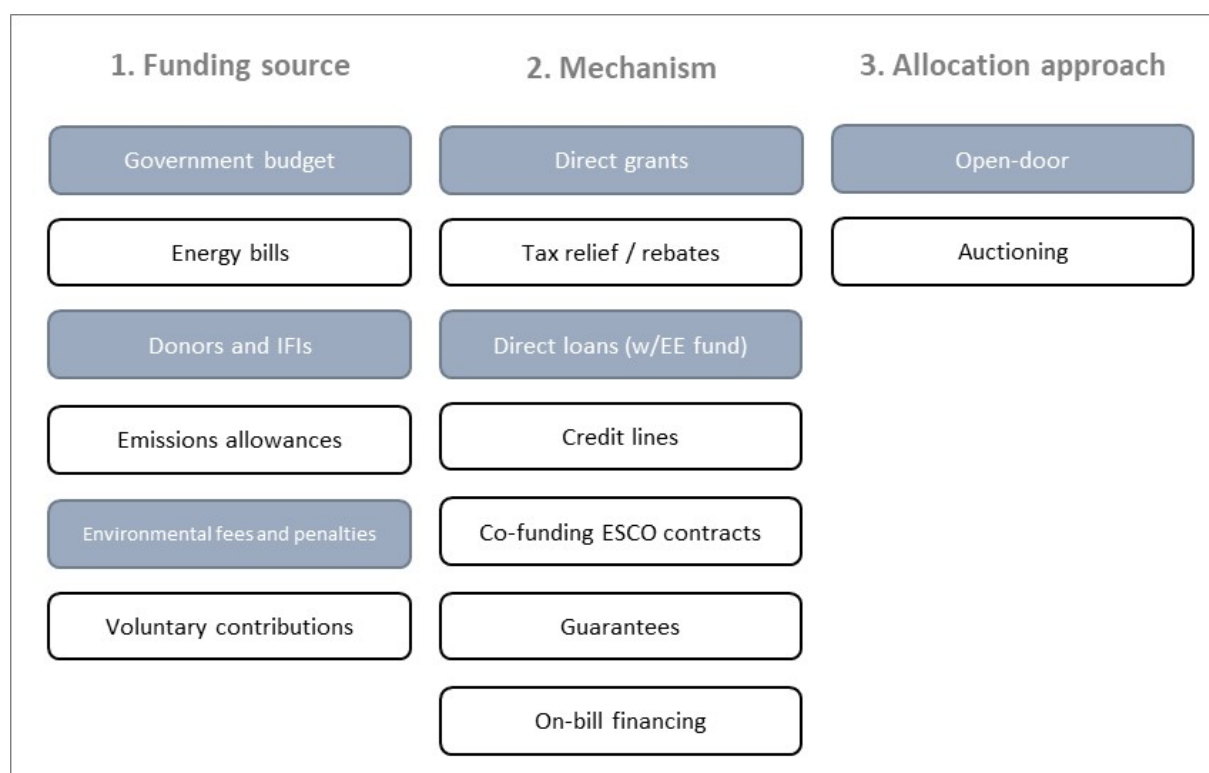
While the ESCO model undertaken through the programme has successfully demonstrated its significant potential, a lack of capacity and confidence within the public authorities seems to be holding back its extension.

The grant scheme for building owners has generated a high level of market interest, but administrative aspects of implementation appear to have created a bottleneck for more widespread implementation.

In both cases, the level of subsidies is high (40% for ESCOs, 60% for building owners) and hence the sustainability of the schemes is questionable unless this can be gradually paired back. In order to achieve this goal, the schemes should undertake further improvements including the introduction of a competitive process for grants, where grants are to be subject to market mechanisms in order to reduce the level of support necessary.

## ANNEX D: Case study – VIPA Lithuanian programme for renovation of multi-apartment buildings

The Public Investment Development Agency (VIPA) of Lithuania is a fully state-owned limited liability company established in 2012 with a mission to increase and improve public infrastructure by improving access to financial instruments. VIPA manages the implementation of EU structural funds and state budget funds as well as leveraging private sector finance through a variety of financial instruments in its targeted end-use sectors. These include the Apartment Buildings Renovation Fund (ABRF) created jointly by the Ministry of Finance and Ministry of Environment initially to implement EU structural funds (JESSICA grants). Since 2017, the ABRF has been supported by loans from the EBRD, and the Government of Lithuania blended with the structural fund grants and further grant support from the state budget through hypothecation of revenues from emissions levies. Demand for VIPA sub-loans is high as demonstrated by the large number of applications. As of December 2019, VIPA had concluded 407 agreements for the renovation of multi-apartment buildings with a total value of EUR 127 Million. Initial loan performance has been good with a very low level of payments in arrears and an extension is under discussion. The scheme therefore demonstrates a blended approach, using a variety of funding sources that are channelled through a competent designated entity and deploying a combination of financial mechanism support types.



### Rationale for creation and objectives of facility

Significant volumes of building stock in Lithuania built prior to independence are in urgent need of renovation. This includes improving their poor energy efficiency performance which involves some buildings losing up to 65% of heat supplied. A lack of capacity to assess projects, together with a focus on short-term lending and unattractive economics of projects, prevented the commercial

banking sector from providing the necessary access to finance for tackling this issue. In response to these issues, the ABRF was established by the Ministry of Finance and Ministry of Environment with VIPA selected as fund manager through a tripartite agreement.

## Product offerings

VIPA works in concert with the Housing Efficiency Agency (BETA) which provides a one-stop-shop for project preparation and implementation support as well as undertaking monitoring and evaluation of all financed measures. The long pay-back period associated with deep retrofits are addressed through low, fixed interest rates (at 3%), lengthy loan terms (up to 15 years), and access to complementary grants of up to 30% of investment costs paid post completion in instalments over first 3-4 years. Further grants are available for covering up to 50% of project preparation, energy certificates, investment plan and construction work supervision costs. Loans are available for up to 100% of investment costs helping mitigate access to capital issues with post completion grants. A gradual reduction in the rate of grant funding has been signalled having already reduced from an earlier rate of up to 45% of investment costs.

Projects must deliver savings of at least 40% of baseline energy use and raise the Energy Performance Certification (EPC) of the building to a class of C or higher. Acceptance is supported by amendments to Lithuanian legislation that enable projects to proceed upon agreement of a simple majority of apartment owners within a homeowner association, with costs recovered through maintenance charges. Specific allowances are made for low income households which are entitled to receive monthly loan instalment compensation whether energy performance obligations are reached or not.

Repayments are made either directly to VIPA or to partner commercial banks which hold receivables in a locked account before being repaid to VIPA and loan originating entities.

## Operational structure

VIPA as a whole employs 55 staff managing a suite of eleven financing facilities of which the DNMF is one. Reallocating staff as new facilities are created or expanded can cause capacity shortages but management is regarded as competent and it is reasonable to expect the leveraging of existing transferable expertise from other programmes assists in successful project initiation.

Internal governance is controlled through the enabling legislation, strategic objectives laid down therein, and the Supervisory Board which includes 5 members:

- 1 from Government
- 1 from Ministry of Finance
- 3 independent members

Operational activity is managed through a Management Board of 3 members who are employees of VIPA. In addition to its governing legislation, VIPA has adopted an internal procedure on the detection and sanctioning of infringements.

## Results and lessons learnt

Loan performance to date is understood to be strong with a low level of payments in arrears. Average energy savings achieved have exceeded the minimum level reaching over 60% of baseline values. The quality of submissions was strong with approximately one in two applications meeting the conditions necessary for loan financing. This may demonstrate the benefits of complementary technical support from BETA, while the one-stop-shop structure may have assisted in ensuring market uptake was strong.

The blending of funding sources has enabled the ABRF to create an instrument of significant scale. Using grant offers to kick-start the programme before seeking to pare back their share in investment costs while maintaining attractive financing options aims to develop a sustainable market and maximise the energy savings that can be achieved.

VIPA's objectives and management structure is clearly defined, competent, and with established processes for ensuring transparency and good governance, demonstrating the benefits of utilising an established centre of expertise.

## Bibliography

VIPA Website (Accessed June 2020): <https://www.vipa.lt/en/home/>