

# Financing energy efficiency: models and lessons

A Policy Brief from the Policy Learning Platform on Low-Carbon Economy



**Interreg  
Europe**



European Union | European Regional Development Fund

## Introduction

The **Interreg Europe programme** 2014-2020 helps regional and local governments across Europe to develop and deliver better policy. Interreg Europe funds interregional cooperation projects in which public authorities (mostly Structural Fund Managing Authorities) can share solutions to improve the implementation of the policy instruments. Interreg Europe has so far approved 130 projects, each of which receives 1-2 million euros of ERDF funding. 17 of these projects focus on energy topics. Each project will produce an action plan on how to improve specific policy instruments, set up regional stakeholder groups and disseminate its findings through the Interreg Europe Policy Learning Platform<sup>1</sup>. Most of the 17 energy related projects address energy efficiency in buildings, but there are also projects focusing on renewable energy (such as biomass) and the smart grid.



## Energy efficiency: benefits and barriers

Investing in energy efficiency offers many benefits, including:

- *Reduced energy costs* for building occupiers who may be using a larger than normal share of their income on energy costs (known as fuel poverty), and can also help make properties more attractive to rent or sell.
- *Reduced emissions*: Due to reduced energy requirements, there are less emissions of the greenhouse gases and other pollutants associated with energy (e.g. from the power stations that generate electricity).
- *Improved security of supply*: Because less energy is required, and a large amount of energy is imported into Europe, the amount and cost of energy imports is reduced.
- *Employment benefits*: Installing energy efficiency improvements generates a demand for labour.

These benefits have led to energy efficiency being the first goal of the European Commission's recent 'Clean energy for all Europeans<sup>2</sup>' policy package proposal.

Despite the impressive benefits there are barriers to improving energy efficiency. Some of these barriers are practical, such as the difficulties of improving the efficiency of old buildings. Some barriers relate to a lack of awareness and knowledge among building owners and some in the construction industry. The most common obstacle, however, relates to finding money for the energy efficiency investments. A recent [seminar](#)<sup>3</sup>, organised by the Executive Agency for Small and Medium-sized Enterprises (EASME), discussed how to surpass this obstacle. Why exactly is finding financing so difficult? Some of the reasons identified during the seminar were:

<sup>1</sup> <http://www.interregeurope.eu/policylearning/low-carbon-economy/>

<sup>2</sup> <https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition>

<sup>3</sup> <https://ec.europa.eu/energy/en/events/financing-energy-efficiency-lessons-successful-horizon-2020-projects-and-other-initiatives>

- *Owners financial capacity*: Building owners often lack the funds to pay for energy efficiency investment.
- *Long pay back*: The return on energy efficiency investments is not large enough to appeal to commercial lenders.
- *Split incentives*: The building owner typically pays for energy efficiency improvements, but when the building is rented out, it will be the tenant that benefits from the reduced energy costs.
- *Fragmentation*: Energy efficiency improvements often consist of multiple, relatively small modifications, for example improving the efficiency of a housing estate could be done by improving the insulation and boilers in every individual house. This would mean multiple small investments, which leads to high transaction costs and is not attractive to most finance providers.
- *Subsidised energy costs*: Where the costs per unit of energy are lower than they should be, the amount of money saved by energy efficiency investments is reduced. This makes the investment less attractive.

Looking at the Interreg Europe energy projects, two of them work on addressing some of the above issues:



The **BUILD2LC** project aims to contribute to achieving the EU energy goals by improving the energy efficiency of public buildings during their refurbishment. The ultimate goal the project partners are after is near zero energy buildings (nZEB). The project has been collecting regional best practices on a variety of topics, including the use of new financial instruments for energy efficiency. The consortium visited three refurbished public buildings, examples created in the framework of the ZagEE project led by the Zagreb municipality. The ZagEE project includes building renovation, installation of renewable energy devices and application of innovative technical and financing schemes. The project has been selected by BUILD2LC as an example of the use of innovative financing schemes. The ZagEE project was presented in Lithuania in an interregional seminar on new financial instruments, in response to the interest of some BUILD2LC partners for its replication in other regions. Further examples of good practice transfer include North West Croatia Regional Energy Agency, which has been learning from Lithuania's experience of using new financing instruments.



The **EMPOWER** project (More carbon reduction by dynamically monitoring energy efficiency) focuses on good practices of dynamic monitoring of energy efficiency in buildings, with special focus on the use of innovative financial instruments, in order to achieve more carbon reduction and to improve low-carbon economy policies. In March 2017, the Veneto Region in cooperation with partners organised an EMPOWER Peer Review meeting in Venice. The meeting brought together different experts with the knowledge and experiences related to energy monitoring and financing of energy projects. Each partner involved two experts from their stakeholder groups. Partners presented the policies they are working on and their main open issues.

## Financial Instruments to help enable energy efficiency

In order to help address some of the financial barriers to improving energy efficiency, direct assistance (i.e. grants) is available from national and European sources (such as Structural Funds). There are also a growing number of financial instruments (i.e. loans), some of which are supported by EU funds. These financial instruments are a recognition that the costs of improving energy efficiency are too large to be met by grants alone, but the benefits are too significant for the opportunities to be missed.

A report from the Energy Efficiency Financial Institutions Group (EEFIG) describes a number of financial instruments relevant for energy efficiency<sup>4</sup>. These include:

- Dedicated credit lines (or soft loans);
- risk-sharing facilities (Guarantee funds and First-loss Facilities);
- real estate and infrastructure funds; and Energy Performance Contracts.

The EEFIG also identifies other emerging instruments, such as the On-Bill Repayment, a mechanism used to improve the creditworthiness (or seniority) of energy efficiency investments by having them repaid in the utility or tax bill and through the existing payment collection infrastructures of utilities or public authorities; and green bonds for green buildings (Supply Driver) led by the private sector and institutional investors.

Each Member State has its own regulations, in line with the Energy Performance of Buildings Directive (EPBD) and Energy Efficiency Directive (EED), regarding improving the energy efficiency of buildings. Analysis<sup>5</sup> of these member states' policies indicates that 43% are financial and fiscal measures – of which 90% are grants; 25% are regulatory measures – mostly directed to the implementation of the EPBD provisions regarding new buildings (and not renovations); and 13% are measures addressing issues such as training and capacity building. Of the planned measures, 36% are related to financing and 35% to regulatory measures. The table below provides a country overview regarding existing economic instruments targeting energy renovations.

**Table 1: Main economic instruments in 2013 targeting energy renovations**

	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	EL	HU	HR
Grants/subsidies	■	■	■	■	■	■		■	■	■	■	■	■	■
Loans		■	■		■	■		■	■		■	■	■	■
Tax incentives		■					■			■	■			
EEO/WC							■				■			
	IE	IT	LT	LU	LV	MT	NL	PL	PT	RO	SE	SI	SK	UK
Grants/subsidies	■	■	■	■	■	■	■	■	■	■		■	■	■
Loans			■				■	■	■	■			■	■
Tax incentives		■					■							
EEO/WC		■												■

*Shaded cells indicate that the economic instruments types operational in 2013 in each Member State*

**Note:** EEO – Energy efficiency obligation; WC – White certificate

**Source:** JRC, 2014. [Financing building energy renovations: current experiences & ways forward](#)

The European Structural and Investment Funds (ESIF) have budgeted over Euro 21 billion as Financial Instruments over the period 2014-2020. National Managing Authorities (MA) oversee the use of all available resources. MAs place ESIF allocations in FIs through a Fund of Funds or a financial intermediary from which eligible projects can be financed. The Commission produces an annual report on the amounts assigned to Financial Instruments

<sup>4</sup> EEFIG, 2015. [Energy efficiency, the first fuel for the EU economy. How to drive new finance for energy-efficiency investments. Part 1: Buildings \(Interim Report\)](#).

<sup>5</sup> Saheb, Y., 2016. [Energy Transition of the EU Building Stock. Unleashing the 4<sup>th</sup> Industrial Revolution in Europe](#).

under the ESIF<sup>6</sup>. Up to the end of 2015 Euro 5.57 billion were allocated to FIs. Of this allocation, around Euro 3.3 billion had been assigned to specific thematic objectives with Euro 0.89 billion assigned to the low carbon economy. The ESIF regulation contains two 'model', or 'off the shelf' financial instruments that MAs can use for energy efficiency. These are the Renovation Loan which is based on a risk sharing loan model (RS loan) (Annex IV of 2014/964/EU) and the Urban Development Fund (Loan Fun for Urban Development Projects (Annex VI of 2014/964/EU)). DG Regio has also produced guidance<sup>7</sup> on the use of financial instruments in this area, partly based on experience gained in the previous structural fund periods.

In addition to the Financial Instruments (FIs) that are developed under ESIF, there are other FIs that are supported with financial input from the European Commission, and with the management and further funding coming from the European Investment Bank (EIB). These include targeted framework loans such as Private Finance 4 Energy Efficiency (PF4EE), investment funds such as the European Energy Efficiency Fund, as well as larger more general funds which have a commitment to include a certain percentage of energy related projects, such as the 23% target for the European Fund for Strategic Investments (EFSI). The EFSI is the central pillar of the Investment Plan for Europe, the so-called "Juncker Plan".

The European Commission also supports technical assistance programmes, notably ELENA, which is designed to help project developers (public or private) prepare energy efficiency schemes, including the better use of FIs.



As part of the Clean Energy for all Europeans programme, the European Commission has recently launched a new Smart Financing for Smart Buildings initiative<sup>8</sup>. The three main goals and the associated actions of this initiative are:

- **More effective use of public funds:** Including the financial instruments listed above for financially viable scheme and grants / tax schemes for market failures and vulnerable customers. Capacity building actions to help further deploy Financial Instruments (e.g. FI Compass<sup>9</sup> – a website and advisory service to help projects identify suitable FIs). Analyse the impact of public accounting rules on the market for energy performance contracting (see below), with the goal of updating the Eurostat guidance before late spring 2017
- **Assistance and aggregation:** Reinforce EU Project Development Assistance (PDA) to help project promoters aggregate projects. Encourage local/regional one-stop shops, that can take projects from idea, through finance and onto construction and operation.

<sup>6</sup> Financial instruments under the European Structural and Investment Funds - Summaries of the data on the progress made in financing and implementing the financial instruments for the programming period 2014-2020 in accordance with Article 46 of Regulation (EU) No 1303/2013 of the European Parliament and of the Council Situation as at 31 December 2015 (Nov 2016)

[http://ec.europa.eu/regional\\_policy/sources/thefunds/fin\\_inst/pdf/summary\\_data\\_fi\\_1420\\_2015.pdf](http://ec.europa.eu/regional_policy/sources/thefunds/fin_inst/pdf/summary_data_fi_1420_2015.pdf)

<sup>7</sup> [http://ec.europa.eu/regional\\_policy/sources/docgener/studies/pdf/financing\\_energy\\_renovation.pdf](http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/financing_energy_renovation.pdf)

<sup>8</sup> Summary presentation at: [http://renovate-europe.eu/wp-content/uploads/2017/02/Timothee\\_REC\\_Smart-Finance-for-Smart-Buildings.pdf](http://renovate-europe.eu/wp-content/uploads/2017/02/Timothee_REC_Smart-Finance-for-Smart-Buildings.pdf)

<sup>9</sup> <https://www.fi-compass.eu/>

- **De-risking:** Including the development of de-risking energy efficiency platform (DEEP<sup>10</sup>) – an open source database to disclose real performance data of real energy efficiency investment projects (with over 7,000 projects already included). A planned value and risk appraisal framework to help underwriters assess energy efficiency investments.

Energy performance contracting is an important concept in the financing of energy efficiency. The central concept is that the energy services company (ESCO) agrees to finance an investment that reduces the energy cost of their client, and takes on the financial and technical risks for a set contract period. The client then uses these energy savings to pay off the costs that the ESCO has met. At the end of the energy performance contract period, when the costs have been paid off, the client should continue to benefit from the lower energy costs. This approach has existed for many years, but its take up has been relatively low, particularly in certain markets. The issue has been investigated in a recent Horizon 2020 project - EnPC-INTRANS –capacity building on energy performance contracting in European Markets in Transition<sup>11</sup>

Another H2020 supported initiative, The Investor Confidence Project Europe<sup>12</sup> aims to help unlock access to financing for the building renovation market by standardising how energy efficiency projects are developed, documented and measured.



The **FINERPOL** (Financial Instruments for Energy Renovation Policies) project<sup>13</sup> is designed to help address the need to source finance to improve the energy efficiency and to integrate renewables into buildings. This includes helping regions find solutions to ensure matching funding for ERDF

grants. The overall objective is to promote the creation of financial instruments supported by ERDF funds and other public and private sources. The outputs will include the improvement of regional policies, including the ERDF Operational Programmes, in seven EU regions and five Managing Authorities. To date the project has held three events – in Extremadura (Spain), Prague and London - to discuss, promote and disseminate best practice in the use of financial instruments in energy renovation. The key findings which emerged from the most recent event (London, November 2016):

Whilst investment funds might operate at a larger scale, local action is needed to bring projects forward, comprising opportunity-spotting, data collection, project development. There is a role for local trusted intermediaries (public bodies / community organisations) in facilitating the development of a pipeline of projects that give necessary scale to unlock funds

Projects need to be developed to a high standard to create the right risk profile for investment, and building owners need local support to achieve this. Data gathering on energy use, and its quality, is fundamental to this task.

Building owner's institutional, legal and operational constraints must be well understood. Investment Funds can be flexible enough to finance different types of projects within the same portfolio (commercial, residential etc.), so it is not necessary to focus on any one sector exclusively

Opportunities exist to create a sizeable project pipeline by coordinating the actions of a number of regional stakeholders into a single basket of investment propositions.

Benefit-sharing models are needed to motivate some building owners, where tenants may

<sup>10</sup> <https://deep.eefig.eu/>

<sup>11</sup> <https://www.enpc-intrans.eu/language/en/project/project-profile/>

<sup>12</sup> <http://europe.eepperformance.org/>

<sup>13</sup> <http://www.interregeurope.eu/finerpol/>

otherwise be the sole beneficiaries of energy efficiency investment  
Opportunity lock-out is a strategic risk that must be taken into account at the start.

The FINERPOL project is in the process of compiling a searchable online database which will include information on 150 project examples.

## ANNEX – A short description of the Interreg Europe Energy Projects

Interreg Europe Energy Projects (1)=1 <sup>st</sup> call, (2)=2 <sup>nd</sup> call	
<b>BUILD2LC</b>	Energy efficient refurbishment of buildings, incl. financial instruments.
<b>FINERPOL</b>	New policies to combine ERDF with Financial Instruments (FIs) for energy investment in buildings.
<b>LOCARBO</b>	Use of regional and local authority policies for changes in consumer behaviour towards improved energy efficiency related to buildings.
<b>REBUS</b>	Improved capacity of public authorities to undertake efficient renovation works of their public building stock.
<b>SOCIAL GREEN</b>	Improved regional policies linking social housing sector and fuel poverty. Green building policy, finance and technical issues.
<b>ZERCO2</b>	Policies promoting near zero CO <sub>2</sub> emission buildings. Including financial tools and work on the combination of technologies and energy sources.
<b>EMPOWER</b>	Reduced CO <sub>2</sub> emissions from buildings via new technology, better management, and more investment.
<b>VIOLET</b>	Development of five Action Plans to improve ERDF and local policy instruments on energy efficiency in traditional buildings.
<b>ENERSELVES</b>	Promotion of new + improved policies, to support installation of RES in buildings for self consumption funded by EU Funds and other EC tools.
<b>CLEAN</b>	Regions to work together to improve the capacity of their policies to increase energy efficiency in housing and public infrastructure by 4%.
<b>SUPPORT</b>	Improved performance of energy policy instruments and the spending of Structural Funds through more effective implementation of local (energy efficiency) plans.
<b>MOLOC</b>	Collective design and testing of innovative ways of achieving low carbon cities through a three steps program towards sustainable energy.
<b>BIO4ECO</b>	Improved policy processes and implementation on the transition to a low carbon economy, on renewable energy, energy efficiency in buildings and biomass.
<b>COALESCCE</b>	Increased capacity for community based approaches to local renewable energy provision.
<b>PASSAGE</b>	Cross cutting low carbon challenges in maritime strait areas.
<b>SET-UP</b>	Improved energy performance of the regions involved thanks to enhanced policies on smart grids.
<b>GREEN SCREEN</b>	Benchmarking and promoting green good practice in the audio-visual sector.

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#EnergyEfficiency #EuropeanPolicy

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