



Innovative Financing Schemes in Local and Regional Energy Efficiency Policies

*Identifying barriers and overcoming them
through share of good practices
and formulation of recommendations to the European Commission*

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210 Avenue Louise, B 1050 Bruxelles

Tel +32 2 646 82 10

www.fedarene.org, fedarene@fedarene.org

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Author:

FEDARENE

Filip-Stefan DUMITRIU

With contributions from:

Hanna ARNESON, Orebro kommun (Sweden)

Francesca BISESTI, Regione Abruzzo (Italy)

Elodie BOSSIO, FEDARENE

Dominique BOURGES, FEDARENE

David BRUSSELLE, Chambre de commerce et d'industrie de Région Nord de France

Emma EID, FEDARENE

Sam EVANS, Severn Wye Energy Agency (United Kingdom)

Marie Laure FALQUE MASSET, ARENE (Ile de France, France)

Francis HAYEN, Smart Cities and Sustainable Development, Belfius Banque (Belgium)

Thekla HEINEL, B.&S.U. Beratungs- und Service-Gesellschaft Umwelt mbH (Germany)

Daniel HESSE, Berliner Energieagentur GmbH (Germany)

Elena JACHIA, Cariplo Foundation (Italy)

Hannu KOPONEN, Central Finland Regional Council

José LOPEZ, Energies POSIT'IF (Ile de France, France)

Valentin LYANT, Observatoire Régional de l'Energie, du Climat et de l'AIR, Région PACA (France)

Marko MILETIC, REGEA, North-West Croatia regional Energy Agency

Paddy PHELAN, Carlow Kilkenny Energy Agency (Ireland)

Vincent PIBOULEU, Régie de l'efficacité énergétique (Picardie, France)

Noémie POIZE, RAEE (Rhône Alpes, France)

Mats RODENFELT, Orebro kommun (Sweden)

Velimir SEGON, North-West Croatia regional Energy Agency

Samantha SIMMONS, Kent County Council

Reinhard SIX, European Investment Bank

Bertrand REYDELLET, CEREMA (France)

Sergio ZABOT, Politecnico di Milano (former ELENA project director at the Province of Milan, Italy)

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EXECUTIVE SUMMARY

Local and regional governments, through “on the ground” concrete measures, play an essential role in the implementation of energy efficiency policies and in achieving the Europe 2020 objectives. They embody the relevant decision making level in sectors such as transportation, urban planning, buildings and welfare, which makes them the most appropriate level for coordinated actions in energy efficiency. Local and regional authorities, through their proximity to citizens and knowledge of each specific local context, also hold the key to effectively adapting energy related policies.

An estimated EUR 60-100 billion have to be spent annually in Europe in order to meet the target of 20% reduction of primary energy use¹. These financial needs cannot be met by public funds alone. The use of market-based solutions must be promoted and innovatively financed projects must be multiplied. These financing mechanisms are innovative by not relying solely on public subsidies or pure grant financing but by having the capacity of diversifying the sources of financing through an effective blend of European, Public and private funds, thus allowing municipalities to overcome the lack of financial resources. The launch of the European Fund for Strategic Investments makes the implementation of such schemes a pressing need.

However, even though energy savings are among the fastest, highest impacting and most cost-effective ways of reducing greenhouse gases emissions, present investments are considerably below the levels needed to achieve these goals. A need to clearly identify and better understand the barriers to energy efficiency investment is essential for public authorities at regional and local levels, in order to access the untapped potential of energy savings. While innovative financing schemes might offer solutions to overcome some of these barriers, their implementations find itself hindered by specific obstacles. Comprehending these issues is crucial to developing and strengthening innovative and best practice methods that promote sustainable and cost-effective financing options².

The innovative financing mechanisms presented in this report are Third party financing experimentation through the creation of public ESCO, ESCO financing via Energy Performance Contracts, Revolving funds, Soft loans, Guarantee funds, Green Bonds and citizen inclusive approaches (cooperatives, crowdfunding etc.). Barriers have been identified for the implementation of each of these schemes.

¹ COM (2012) Consultation Paper: “Financial Support for Energy Efficiency in Buildings”; and EURIMA. (2012). *Financing Mechanisms for Europe’s Buildings Renovation*.

² GUERTLER, Pedro, ROYSTON, Sarah, WADE, Joanne. « Financing energy efficiency in buildings: an international review of best practice and innovation ». p. 10. Association for the Conservation of Energy. June 2013.

The FEDARENE recommends to the European Commission ten groups of measures and approaches that could address the barriers to innovative financing:

1. Raising awareness at the decision making level
2. Capacity building in Energy Efficiency innovative financing
3. Dissemination of successful projects
4. An improved and multiplied offer of Project Development Assistance
5. Leveraging and blending European Structural and Investment Funds
6. Encouraging easier access to loans
7. Maximizing the use of the European Fund for Strategic Investments
8. An European legal framework for crowd-investing
9. Encouraging adaptation of public procurement procedures
10. A more energy efficiency – considerate interpretation of public debt rules

INTRODUCTION

FEDARENE is the premier European network of regional and local organisations which facilitate or implement sustainable energy policies and measures at the regional and local levels. FEDARENE's main missions include serving as a platform for the exchange of best practices to foster replication and preparing position papers on European legislation and programmes and other challenges faced by regional and local authorities in their sustainable energy projects. In line with these objectives, the following writings focus on the financing barriers hindering regional and local energy efficiency policies.

In this study, energy efficiency shall be construed according to the energy efficiency directive 2012/27/EU as being the ratio of output of performance, service, goods or energy, to input of energy. In this regard, while the term “energy savings” refers to the amount of saved energy determined by measuring and/or estimating consumption before and after implementation of an energy efficiency improvement measure, an energy efficiency improvement means an increase in energy efficiency as a result of technological, behavioural and/or economic changes³.

In the Europe 2020 strategy there is a strong focus on the flagship initiative “A Resource-Efficient Europe” and the role played by regions and cities is identified as pivotal in fostering resource efficiency through the implementation of policies, programmes and projects⁴. Local and regional governments, through “on the ground” concrete measures, play indeed an essential role in the implementation of energy efficiency policies and in achieving the Europe 2020 objectives. They embody the relevant decision making level in sectors such as transportation, urban planning, buildings and welfare, which makes them the most appropriate level for coordinated actions in energy efficiency. They invest in green buildings, energy retrofitting, sustainable water, waste management and reduce greenhouse gas emission by promoting cleaner modes of transport. Local and regional authorities, through their proximity to citizens and knowledge of each specific local context, also hold the key to effectively adapting energy related policies. The Committee of the Regions also stresses the importance of energy efficiency as a guiding principle of EU policies across several fields, such as energy, transport, climate change, industry, raw materials, agriculture, fisheries, biodiversity, water and waste management, land use and regional development.⁵ No single stakeholder or policy sector can achieve this complex objective on its

³ Art.2, Energy Efficiency Directive 2012/27/EU of the European Parliament and of the Council of 25th October 2012

⁴ Committee of the Regions (2013) A resource-efficient Europe – Contribution of Regions and Cities, Background note, p.2. Conference of the Committee of the Regions, Lithuania, 2/3 September 2013.

⁵ Ibidem

own. Energy efficiency policies must be constructed and carried out through multiple governance levels and cannot be effectively tackled through a classic single-sector, “top-down” approach.

Recent studies suggest that more coordinated actions across multiple levels of government – international, national, regional and local – can effectively increase energy efficiency⁶.

Energy efficiency plays a vital role in mitigating climate change, reducing reliance on imported fuels and moving to a competitive low carbon economy. Energy Efficiency has been described as the European Union’s biggest energy resource⁷ and one of the most cost effective ways to consolidate the security of its energy supply and decrease the emissions of greenhouse gases and other pollutants⁸. This is why the European Union has primary energy consumption saving targets for 2020, 2030 and further legislation in the field looking to a 2050 horizon.

However, even though energy savings are among the fastest, highest impacting and most cost-effective ways of reducing greenhouse gases emissions, present investments are considerably below the levels needed to achieve these goals. The International Energy Agency, in its 450 Scenario⁹, estimates a \$1.3 trillion need of investment in energy efficiency in buildings in the European Union from 2014-2035 and \$154 billion in energy efficiency in industry. This means almost doubling current investment trends. A need to clearly identify and better understand the barriers to energy efficiency investment is essential for public authorities at regional and local levels, in order to access the untapped potential of energy savings. While innovative financing schemes might offer solutions to overcome some of these barriers, their implementations find itself hindered by obstacles. Comprehending these issues is crucial to developing and strengthening innovative and best practice methods that promote sustainable and cost-effective financing options¹⁰. The following report aims to contribute to these research efforts.

⁶ Jollands, N., Gasc, E. and S.B. Pasquier (2009) Innovations in multi-level governance for energy efficiency - Sharing experience with multi-level governance to enhance energy efficiency, p.9, Information Paper, Energy Efficiency Series, International Energy Agency

⁷ COM (2011) 0109 final

⁸ Energy Efficiency Financial Institutions Group. “Energy Efficiency – the first fuel for the EU Economy: How to drive new finance for energy efficiency investments”. Final report. P. 10. February 2015.

⁹ IEA. (2014). Special Report: World Energy Investment Outlook.

¹⁰ GUERTLER, Pedro, ROYSTON, Sarah, WADE, Joanne. « Financing energy efficiency in buildings : an international review of best practice and innovation ». p. 10. Association for the Conservation of Energy. June 2013.

I. The goals, method and challenges of this research

The aim of this research was to set the basis for recommendations to be addressed to the European Commission. These recommendations tackle the issue of the main barriers and bottlenecks of legal, political and financial nature that limit the use of innovative financing schemes. In order to give appropriate advice, it was crucial to proceed to an inventory and benchmarking regarding the main innovative financing schemes carried out by local and regional authorities in their energy efficiency policies in order to identify these barriers.

The research was based on the collect of information from national and European reports, project documents, scientific articles and legal documents. This preliminary work enabled an assessment of which instruments are most adapted and likely to be used by public authorities. The research technique was also based on a bottom-up approach. It is in large part on the basis of written contributions from experts, and of interviews of project developers that the presentations of the instruments were structured. Projects carried out by FEDARENE members were a priority in this research project but results achieved outside this field were also taken into account.

This study has therefore three main objectives:

- share innovative financing solutions and encourage replication in order to perfect these methods,
- identify barriers and bottlenecks that project developers where faced with and raise awareness regarding these issues among decision-makers at the European level,
- draw conclusions and form recommendations to the European Commission.

This review uses a broad definition of “energy efficiency projects”, even though we mostly refer to building retrofitting rather than other type of energy saving projects (e.g. street light). We consider schemes aimed at both residential and commercial/public or industrial buildings, and a wide range of energy efficiency improvements and technologies.

II. Financing Energy Efficiency through innovative approaches

1. The need for innovative financing schemes

It is essential to recognize that classic public funding has a limited and short-term effect on global energy efficiency achievements¹¹ for several reasons:

- Subsidies are limited resources that depend on public priorities and budgetary margins. Massive market stimulation programmes require larger and more constant investments.
- Public subsidies don't usually answer the need of technical assistance of project developers.
- The financial credibility and solidity of project developers before financial institutions is not an issue that can be solved by public subsidies.

An estimated EUR 80 billion has to be spent annually in Europe in order to meet the target of 20% reduction of primary energy use¹². These financial needs cannot be met by public funds alone. The use of market-based solutions must be promoted and innovatively financed projects must be multiplied. As mentioned in the European Commission's Communication regarding the "Energy Union Package" (COM (2015)80 final), local and regional authorities face the difficult challenge of attracting investments mainly due to lack of awareness and expertise in small-scale financing. Promoting new financing mechanisms must therefore be combined with support in terms of project development assistance. These financing mechanisms are innovative by not relying solely on public subsidies or pure grant financing but by having the capacity of diversifying the sources of financing through an effective blend of European, Public and private funds, thus allowing municipalities to overcome the lack of financial resources. The launch of the European Fund for Strategic Investments makes the implementation of such schemes a pressing need.

Innovative financing schemes offer indeed a wide range of advantages in preference to grant funding:

- Firstly, as opposed to non-repayable Grants, some innovative financing schemes (such as revolving funds) enable regional and local authorities to recycle capital for future use. This allows for a much greater efficiency in the allocation of public capital and the long-term sustainability of public investment.

¹¹ BULLIER, Adrien, MILIN, Christophe. « *Alternative financing schemes for energy efficiency in buildings* ». P.796. ECEEE Summer Study – Rethink, Renew, Restart. 2013.

¹² COM (2012) Consultation Paper: "Financial Support for Energy Efficiency in Buildings"; and EURIMA. (2012). *Financing Mechanisms for Europe's Buildings Renovation*.



- Secondly and as previously mentioned, innovative financing schemes can be used to catalyse a leverage effect. By unlocking other public sector funding and private sector resources through co-financing and co-investment, these schemes increase the overall capital available to achieve the energy efficiency policy goals.
- Thirdly, private sector involvement enables policymakers use the private sector skills and expertise in areas such as identifying investment, decision-making, management of commercial operations and the ability to achieve returns.
- Fourthly, these innovative schemes can be tailored to local and regional circumstances with inbuilt flexibility and can be adapted if needed.
- Finally, innovative financing schemes have the potential to make significant long-term contributions to the energy market development through supply-side development and support, through the use of public sector capital, capacity building and knowledge exchange, which can help stimulate and support financially-viable solutions.

An overview of such schemes has revealed a variety of imaginative concepts and mechanisms that could allow project promoters to find financing for endeavours otherwise not deemed cost worthy. Among these instruments we have selected those that were and can reasonably be implemented by regional and local authorities in their energy efficiency policies. However, the implementation of these mechanisms needs to be eased by addressing the barriers specific to each instrument as well as those overarching ones.

2. The regional and local innovative financing schemes

2.1. Promoting Third Party Financing and Energy Performance Contracting

2.1.1. Third party financing experimentation through the creation of public ESCOs

A preliminary clarification regarding this scheme needs to be made. Energy Service Company (ESCO) financing refers to financing with internal funds of the entity, and may involve its own capital or equipment lease. ESCO rarely use equity for financing, as this option limits their capacity of carrying out projects on long term. ESCO may therefore resort to third party financing (TPF). In this case the financing of the works comes from a third party (e.g. financial institution), and not from internal funds of the ESCO or of the customer. In theory, ESCOs could also use European Structural and Investment Funds to this end.

Furthermore, there is a clear distinction between third party financing, and third party investment¹³. Third party financing is a scheme in which a third party (e.g. financial institution) provides the homeowner with a loan (debt). The third party financier has therefore a claim on the owner who takes the risk of not achieving the energy savings. In this scheme, the third party financier needs to secure the debt. On the other hand, third party investment is a scheme in which the investments on the household are not done by the homeowner but by a third party investor, thus relieving him from the burden of debt. However the third party investor will obtain his reimbursement via the future energy savings, and takes therefore the risk of not achieving the expected savings.

As it will be explained in the next section, there are two different Third Party Financing arrangements associated with Energy Performance Contracts, the key difference between them being which party borrows the money: the ESCO or the client.

- In the first case, the ESCO borrows the financial sources necessary for project implementation.
- In the second case, the customer (homeowner) takes a loan from a financial institution, which is backed by an energy savings guarantee agreement by the ESCO. The savings guarantee in this case demonstrates to the bank that the project for which the customer is borrowing will generate a positive cash flow (i.e. that the savings achieved will certainly cover the debt repayment)¹⁴. The objective is to reduce the risk perception of the bank by guaranteeing the energy savings, which has implications for the interest rates at which

¹³ Ibidem, p.797.

¹⁴ <http://iet.jrc.ec.europa.eu/energyefficiency/european-energy-service-companies/financing-options>

financing is obtained. The “costs” of loans are strongly linked to the size and credit history of the borrower.

Indeed, financial institutions have requirements which cannot easily be met by energy efficiency projects (especially when deep renovations are involved) in terms of profitability, liquidity, and trustworthiness. Public intervention can be an efficient tool to help structure the supply, in order to create schemes capable of implementing energy efficiency retrofits. The creation of third party investment operators would enable the management of large investments with low profitability in very long term commitments.

Public authorities (national, regional and local authorities as well) seem to be the relevant actors for setting up of such operators which would be called “public ESCOs”. The creation of public TPI operators would not necessarily exclude the participation of private capital, as the presence of public entities as stakeholders would contribute to a greater credibility of the structure before homeowners. Indeed, *“trust in the operator is essential for the uptake and generalisation of long-term contracts”*¹⁵.

A public Energy Service Company (“ESCO”) is therefore a publicly-owned company designed to manage energy efficiency investments and to deliver guaranteed savings to a host and counterparty to an Energy Performance Contract which is set up with mainly public funds. This institutionalisation enables implementation of EPCs in sectors and regions where the private sector offer is insufficient.

Several models have been already implemented by municipalities:

- An ESCO with utility involvement (ex. ESCO LIMBURG 2020)
- A condominium deep renovation oriented ESCO (ex. Energies POSIT’IF)
- A Public Service for Energy Efficiency (ex. SPEE Picardie)

Case study: Public Service for Energy Efficiency via a Public Office (Picardie, France).

Other documented cases: ESCO LIMBURG 2020 (Limburg, Belgium), Energies POSIT’IF (Ile de France, France), Building trust model in Bristol, AREA (Provence-Alpes-Côte d’Azur, France), OSER (Rhône-Alpes, France).

2.1.2. ESCO financing via Energy Performance Contracts

An Energy Performance Contract is a *“contractual arrangement between a beneficiary and the provider of an energy efficiency improvement measure, verified and monitored during the whole*

¹⁵ BULLIER, Adrien, MILIN, Christophe. « *Alternative financing schemes for energy efficiency in buildings* ». P.801. ECEEE Summer Study – Rethink, Renew, Restart. 2013.

term of the contract, where investments (work, supply or service) in that measure are paid for in relation to a contractually agreed level of energy efficiency improvement or other agreed energy performance criterion, such as financial savings”¹⁶.

EPCs do not organize the supply of a physical product or service, but are based on the desired outcome such as energy savings and/or equipment renewal. These are usually long term contractual agreements where the customer benefits from new or upgraded energy equipment or building refurbishments and the ESCO's payment is directly linked to the energy savings achieved. The cost of investment can be paid back from the savings, and if the savings fall short, the ESCO covers the shortfall. It is this shift of the risk that should be construed as the main goal of the EPC. Therefore, it should be understood that the EPC is not a financial instrument as such, but offers an agreement facilitating and innovative financing scheme. However, there are two types of Energy performance contracts:

- The **guaranteed savings model**: the ESCO guarantees the savings, but the homeowner finances the investments. The EPC only facilitates the investment decision and the acquisition of the third party financing.
- The **shared savings model**: this model is based on a third party investment approach in which the ESCO finances and guarantees the savings and has a claim on a certain portion of the energy savings in order to repay to upfront costs.

Energy Performance Contracts is rarely used today in deep renovation of buildings and most of them are based on the guaranteed savings model, which brings no innovation into the financing scheme. In order to structure the demand for Energy Performance Contracts, local and regional authorities may act as market facilitators. In order to stimulate the demand for EPCs, they can act as mediators between ESCOs and their clients. In 1996 there was the first successful example of this strategy implemented by the Berlin Energy Agency's. Their strategy was based on offering technical assistance to local public building owners, bundling the retrofit projects (pools ranging from 4 up to 400 buildings), and launching tenders for the signature of the EPCs.

However, this strategy requires a certain set of specific technical, legal and financial skills that cannot easily be found within certain municipalities. The offer of technical assistance in the project development is crucial. Besides the European offer of technical assistance (ELENA or PDA), smaller scale grant programmes aimed at financing the technical expertise can help small municipalities that do not necessarily understand the dynamics of ESCO financing. The “100 efficient and sustainable municipalities” project financed by the Cariplo foundation (Italy) is a good

¹⁶ Article 2, Energy Efficiency Directive 2012/27/EU of the European Parliament and of the Council of 25th October 2012

example of the crucial role technical assistance can play in the effective financing of energy efficiency projects through ESCOs.

Case study: Energy Efficiency Milan (ELENA project).

Other documented cases: RE-FIT (Kent County Council, United Kingdom), Feedback from Streetlight – EPC projects from the Carlow Kilkenny Energy Agency and the Region of North-West Croatia.

2.2. Loans and Funds

Even if in this brochure revolving funds, soft loans and guarantee funds are presented separately, these instruments are closely linked and usually part of the same scheme. **Preferential loans** (to which **revolving funds** are usually linked) and **credit risk guarantees** are considered to be the most frequently used financing tools in policies to stimulate private investment within the European Union¹⁷. While preferential loans are characterised by having their interest rate subsidised by governments, guarantee funds share the credit risk of energy efficient investments with the investors.

2.2.1. Revolving funds

A Revolving fund provides financing to project developers that wish to implement energy efficiency, renewable energy, and other sustainability measures that generate cost-savings. These savings are tracked and used to replenish the fund for a next round of investments, thus establishing a sustainable funding cycle while cutting operating costs and reducing environmental impact. Revolving funds are a financing option for an innovative use of the European Regional Development Fund.

Indeed, the Joint European Support for Sustainable Investment in City Areas (JESSICA) is an initiative of the European Commission and the European Investment Bank that uses some of the European Structural Funds to support and repayable investments in projects forming part of an integrated plan for sustainable urban development, specifically through revolving funds. The investments (equity, loans and/or guarantees) are delivered through Urban Development Funds designed as revolving funds for which returns from revenue generating components of investment are reinjected in new urban development projects¹⁸. The JESSICA revolving funds can be applied at regional and local level as long as the government's political will is established. The next step is

¹⁷ CHARALAMBOUS, Anthi, HEALY, Audrey, MABY, Catrin et al. "Countdown to Low Carbon Homes: Delivering community scale retrofit of home energy improvements". p.22. SevernWye Energy Agency

¹⁸ B.S.U., BALL Elizabeth, LYNAR Uta, SKRZIPCYK Alexander. "Guidelines for Innovative Use of EU Funds for Measures in the Housing Sector and Deprived Urban Areas".p.10. WP 5 Transnational Manual.

determining and independent institution responsible for the administrative work of the fund. The responsible institution ought to find partners that can offer expertise on financing and technical issues. The financing can be found in Structural funds from the EU, financial sources from the government or from international financial institutions. After the eligibility criteria for the loans is set, a marketing campaign needs to be engaged in order to inform the target groups and motivate them to make use of the funds by investing in adequate projects¹⁹.

The KredEx Revolving Fund in Estonia is the most successful revolving fund project for energy retrofitting of residential buildings implemented in the new Member States (without JESSICA funds).

Case studies: The KredEx Revolving Fund (Estonia), Intracting (Stuttgart), Revolving Retrofit Guarantee Fund (Severn Wye energy agency).

Other documented cases: The City of Zagreb is currently working on a revolving fund that will implement the recycling of public funds model in order to finance building renovations for energy savings, JESSICA implementations in Lithuania and Poland, Salix Finance Ltd (United Kingdom).

2.2.2. Soft loans/Dedicated Credit Lines

Dedicated credit lines (or soft loans) are a mechanism where public funding decreases the cost of energy efficiency building renovation loans and provides concessions on terms, such as repayment periods. The impact and relative success of dedicated credit lines can also be attributed to their retail distribution through networks of private banks.

Many public international financing institutions and national governments are experimenting loan programmes to kick-start the market and fill the debt gap where local and traditional banking sector actors are not active²⁰.

Loans may be offered to individual residential or non-residential customers, or to a group of customers, such as an apartment association. Soft loans for energy efficiency can also be delivered through mortgages. Indeed, preferential mortgage terms may be offered to energy efficient homes, or an existing mortgage can be extended to allow a customer to finance efficiency improvements (on better terms than a new loan could offer).

Even though soft loans seem to be an efficient method of financing energy retrofitting of buildings, their accessibility is naturally limited to building owners who are able to take on additional debt. A lot of building owners cannot or do not want to increase their debt for investments in energy renovation.

¹⁹ Ibidem, p. 11.

²⁰ GUERTLER, Pedro, ROYSTON, Sarah, WADE, Joanne. « Financing energy efficiency in buildings: an international review of best practice and innovation ». p. 11. Association for the Conservation of Energy. June 2013.

Case studies: Ecopack (Wallonia-Region), the KredEx Revolving Fund (Estonia), Revolving Retrofit Guarantee Fund (Severn Wye energy agency).

Other documented cases: Community Energy Loan Scheme in Kilkenny (Ireland), the Amsterdam Investment Fund, Delft Energy Saving Fund.

2.3. Guarantee Funds

Guarantee funds are used to underwrite the losses to the lender should the borrowers miss a payment or default. If the loan goes into default the debt recovery process will start. If the loan is irrecoverable this can be recouped from the guarantee fund (up to the maximum amount in the guarantee fund). This guarantee, when linked to a preferential credit scheme, “softens” the loan and makes it more widely available, potentially at lower costs as it reduces the risk to the lender. The Revolving Retrofit Guarantee Fund (RRGF, mentioned in the Case Study) is an example of the credit risk guarantee approach.

Guarantee mechanisms aim at engaging financial institutions by supporting and sharing the credit risk of the energy efficiency investments. The guarantee makes financiers accept the risk for debt lending and act as a catalyst to scale up private investment in energy efficiency. However it is important to understand that guarantee mechanisms are an essential complement to other financing approaches, in order to fill the financial gaps encountered by early stage energy efficiency projects²¹. Guarantee funds may be used as a temporary public sector intervention in order to demonstrate to the financiers that loans are being repaid successfully, thus on the long run gaining their trust.

Such instruments are urgently needed in developing countries, where the guarantees must cover a very large amount of the loan, sometimes up to 150% (as opposed to most energy efficiency guarantee programmes in Europe that typically provide 50% guarantee).

Case study: Revolving Retrofit Guarantee Fund (Severn Wye energy agency).

Other documented cases: Energy Efficiency and Renewable Sources Fund (Bulgaria), Brussels Green Loan Scheme, Regional Investment and Guarantee Fund (Ile de France), Retrofit Revolving Loan Guarantee Fund developed by the Global Environmental Social Business (GESB).

2.4. Green Bonds

²¹ MAKINSON, Sandra. 2006. “Public Finance Mechanisms to Increase Investment in Energy Efficiency: A Report for Policymakers and Public Finance Agencies”.

Green bonds are financial instruments in which the proceeds are exclusively applied to (new and existing) “green projects” that promote climate or other environmental sustainability results. A bond is a type of loan which companies, governments, and banks use to finance projects. The issuer of the bond (the borrower, in this case Orebro) owes the holder (the creditor) a debt and is obliged to pay back the amount lent within a certain amount of time and with a certain interest. Green bonds are the bonds where the proceeds are allocated to environmental and climate change projects. Energy efficiency projects fall within this scope.

Experts suggest, in order to encourage the development of green bonds, alongside monetary demands that are addressed towards the financial market, there could be corresponding ones regarding environment and climate. Carbon footprint of portfolios, businesses could be axiomatic, as could ecological footprints.

Case study: Orebro Kommun’s Green Bonds.

Other documented cases: City of Gothenburg (Sweden), Varna (Bulgaria), Ile de France region (France).

2.5. An overview of citizen inclusive approaches

2.5.1. Crowdfunding platforms

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Crowdfunding consists in the aggregation of investors who have no direct link to the project being funded and who must trust the website offering the scheme and the projects’ promoters. It generally refers to open calls to the public to raise funds for a specific project.

Overviewed platforms: REGEA’s crowdfunding platform project for energy efficiency and renewables, Green Crowding (Brussels), Bettervest (Germany).

2.5.2. Cooperatives

Cooperatives are initiatives of citizens who invest, through autonomous associations, in their own production, distribution, efficiency measures and/or supply of energy. This instrument is currently used to fund renewable but could be used to fund energy efficiency investments (see Touchstone Energy Cooperatives in the USA). In these community energy projects the investors live in the area where the investment takes place. Therefore they not only have a financial return but also benefit in-kind. Regularly in the statutes of these cooperatives, energy efficiency is among its goals. However, in order to cover the costs of energy efficiency retrofitting, benefits from the renewable energy generation must be high.

In order to achieve the ambitions of local sustainable energy plans, “community finance”, which on some level may be regarded as a form of crowdfunding, could be offer a valuable financing solution. Given the speed with which both crowdfunding and the energy cooperative sector are expanding (the number of European energy grew cooperatives grew from 1200 last year to some 2000 this year)²², community-financed cooperatives could become a decisive instrument in the energy efficiency efforts.

Case study: Centrales villageoises (Rhone-Alpes Energie Environnement)

Other documented cases: Gussing (Austria) and other Rescoops such as Sifnos (Greece), Energie Partagée (France).

2.5.3. Sustainable savings accounts

Deposits on sustainable savings accounts are used to finance energy efficiency and renewable energy sources projects. The citizens, as depositors, become financiers and contribute to the achieving energy efficiency goals.

Case study: Livret d’épargne de la “Troisième révolution industrielle” (Nord-pas de Calais Region)

Other documented cases: The savings account of the “Triodos” bank (Belgium).

2.5.4. Crowdsourcing experimentation programme for sustainable solutions

This type of programme is based on the concept of crowdsourcing innovative sustainable solutions and financing pilot projects to test their feasibility. Collecting ideas for sustainable solutions directly from local residents and involving them in their implementation has provided acceptance from the local communities for advancing resource efficiency and sustainable development, acceptance that is otherwise in some cases a considerable barrier for such projects.

Case study: “Towards Resource Wisdom” (Finland).

²² <http://www.managenergy.net/articles/61>

III. Case Studies

1. Promoting Third Party Financing Schemes and Energy Performance Contracting

1.1. Third party financing experimentation through the creation of a public ESCO: Public Service for Energy Efficiency (Picardie, France)

a. Key features and figures

- Use of ERDF and ELENA's technical assistance for an innovative scheme.
- State-owned company experimenting Third Party Financing.
- Sustainable refurbishments.
- Budget range of the pilot phase: €65, 9 M.
- Key barrier: lack of a legal framework authorising third party financing schemes.

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b. Context

The Regional Council of Picardie is implementing an experimental "Energy Efficiency Public Service", or "Regional Energy Efficiency Agency". Previous initiatives included:

- building a network of Energy-saving Advice Points (15 advisers over more than 20 years which generated more than 6000 contract per year),
- organising capacity building sessions for professionals (GLOBE 21, MEF du Vermandois...),
- experimenting zero rate loans for energy efficiency renovations and renewable energy individual projects (10 000 files within 4 years).



In Picardie, the potential work for such a public service is considerable:

- 800 000 households, two thirds of which were built before 1975.
- 74% private individual owners.
- 65% of these owners live in these dwellings



c. The project

Picardie instituted the Public Service for Energy Efficiency on the 27th of September 2013. On the 29th of November of the same year was established the Public Office for Energy Efficiency which is the state-owned enterprise centralising the project management and funding. The Office signed the first renovation contract on the 9th of July 2014. The service offers a complete technical and customised support (to stimulate household demand), an integrated third-party funding solution (to avoid the deterring effect of up-front costs for homeowners) and project execution assistance (to structure and support local renovation supply).



These activities are currently in a pilot phase, carried out in 12 areas where 2000 households will be refurbished over a period of 3 years (2014 – 2017). The offer is comprised of:

- Information, personalised advice, thermal diagnostic review of the housing unit, tailor-designed renovation plan
- Consultation of partner companies which were selected through a public tender.
- Works carried out by these local renovation companies that aim for energy savings ranging from 50% to 75%.
- Advice and assistance in the use of the equipment, maintenance and the tracking of the energy consumption.
- 5 years maintenance of the works (in order to verify the energy savings and repair if needed).

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The contracts that are signed with the customers are not considered Energy Performance Contracts as such. The results of the pilot phase will have to prove the capability of the public ESCO to engage in Energy Performance Contracting.

d. Focus on the financing mechanism

• Averting the banking monopoly:

This project is mentioned in this inventory mainly because of its experimental use of third party financing. In this regard it is essential to point out that the French legislation establishes a

banking monopoly allowing exclusively financial institutions to issue loans²³. This has been an obstacle not only for the operator from Picardie, but also for some public-private companies such as Energies POSIT'IF which were planning on using a third party financing scheme. On the 5th April 2013, a preliminary opinion of the French Banking Authority²⁴ had authorized Energies POSIT'IF to engage in third party financing as long as it remained an accessory activity. Furthermore the article 124 of the ALUR act provided a legal definition for third-party financing activities. The way seemed clear until the French Banking Authority delivered (12th of February 2013) a second notice explaining that the Monetary Code needed to be reformed in order to pursue third party financing operations. It also specified that the ALUR article was merely giving a technical definition of the financing mechanism. Meanwhile, the article 6 of the French draft law on the Energy Transition provides for a simplified authorization for third party financing operators. This draft law will hopefully be enacted by the end of this year.

Nevertheless the Public Office for Energy Efficiency managed to get around this considerable blockage by using an instrument that prevents them from falling within the purview of the banking monopoly: the supplier credit. This supplier credit enables the Public Office to pay in advance the costs of the refurbishments, and receive payments from the homeowners over a period of 25 years (15 years for infrastructures). These payments will represent 50% of the energy savings achieved after the retrofitting. The supplier credit is offered at a 2% interest rate.

The supplier credit obligates the Public Office to assume the position of general contractor and is therefore legally bound by a 10 year guarantee under which the constructor is responsible for the whole works within this period. This guarantee obligates him to subscribe an insurance contract implying additional transaction costs. **This scheme will not be economically viable on the long-run, therefore it is crucial for the French Parliament to pass the law recognizing third party financing as a legal exception to the banking monopoly.**

- **A diversified source of funding:**

The funding needs for the 3 years pilot phase amounts to 65, 9 M € for about 2 000 files:

- 56,9 M€ for the works
- 9,0 M€ for the service activity (internal staff, renovation technicians, pilot construction sites, operational charges, guarantee fund)

The current funding sources:

²³ Article L511-5 du Code monétaire et financier : *Il est interdit à toute personne autre qu'un établissement de crédit ou une société de financement d'effectuer des opérations de crédit à titre habituel. Il est, en outre, interdit à toute personne autre qu'un établissement de crédit de recevoir à titre habituel des fonds remboursables du public ou de fournir des services bancaires de paiement.*

²⁴ Autorité de contrôle prudentiel et de résolution.



- 8,0 M€: initial provision (Picardie Regional Council)
- 1,8 M€: technical assistance ELENA
- 600 000€: subsidies from ADEME (Agence de l'Environnement et de la Maîtrise de l'Energie)

Additional expected funding:

- 47,0 M€= Joint loan for the EIB and the Caisse des Dépôts et Consignations
- 3,4 M€= PSEE's service (1 860 € fee per contract, including taxes)
- 1,8 M€= Technical assistance ELENA
- 4,2 M€= Valued Energy savings certificates(works+ provision)
- 1,5 M€= ERDF / CPER (Contrat de plan Etat-région)

- **An adaptation of the On-Tax financing scheme?**

The Energy Efficiency Financial Institutions Group in its final report of February 2015 has identified the Public Service for Energy Efficiency from Picardie as an initiative aiming at adapting the United States' PACE scheme, or "on-tax finance". It consists in a scheme in which the money lent to the homeowner for the energy retrofitting, is attached to the property and reimbursed through local taxes by the occupant. In the French case, even though the PSEE receives an 1860€ fee from the customers, this fee cannot be for the time being construed as a local tax.

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e. Main results

The programme has been functioning since the second quarter of 2014. As of 1st of April 2015, it has had:

- 450 contracts processed by the Office
- 53 subscription contracts signed (making 2 131 604 € worth of works, and generating 59% energy efficiency on average per retrofitting)
- 160 thermal diagnostic reviews completed
- 30 further contracts pending signature (amounting to 1 M € in additional investment)
- 23 public tenders since October 2014



Three new projects are underway (started in late March 2015). The PSEE initiative aims to create by mid-2019 650 jobs in construction (33 direct job created within the Regional office and local structures).

f. Main barriers and bottlenecks

Barriers specific to this project:

- i. The French banking monopoly (specific to France) obligated the public ESCO to resort to supplier credit which implied a considerable raise in the transaction costs (on average 1000 € for each new contract) caused by the insurance for the 10 years guarantee.
- ii. Banks were and are reluctant to offer loans, and certainly do not consider offering soft loans. Loans for deep renovations in condominiums imply very high transactions costs and a complex and structured management of the credit lines. Only a few specialised financial institutions deal with such type of loans which enables them to offer them without preferential terms.
- iii. The reluctance of banks is also caused by the long payback times.

General barriers linked to the financing scheme itself:

- i. Lack of a legal definition and regime for Third Party financing (banking monopole is the main obstacle in France).
- ii. Very “early stage” and limited to very few Member States (mainly France. The resulting lack of standardisation implies high transaction costs.
- iii. Public budgets and in-house capabilities of local authorities are limited when it comes to setting-up new “finance related” instruments.
- iv. Needs changes in the legal frameworks, in order to comply with financial regulations and to access the same fiscal benefits as individual homeowners.
- v. Lack of a clear project pipeline.
- vi. Accounting and regulatory treatment for new vehicles and their clients.
- vii. In condominium deep renovation projects, the decision making process is not adapted to the “Pure energy performance contracting (Each successive expense must be decided by the general assembly of co-owners: Feasibility studies, thermal renovation budget, collective loans or TPF.

For further information: <http://www.pass-renovation.picardie.fr/>

Twitter: @PicardiePass

Other documented cases:

Several other models of Public ESCOs have been experimented: an ESCO with utility involvement (ex. ESCO LIMBURG 2020, Belgium), a condominium deep renovation oriented ESCO (ex. Energies POSIT'IF, France).

ESCO LIMBURG 2020, Belgium:

- 3 partners involved: Province of Limburg ("Covenant Coordinator" under the Covenant of Mayors), Infrax (public energy grid operator owned and financed by 126 local and regional Flemish authorities) and Dubolimburg (provincial support centre).
- Activities are based on the initial Energy Service Company of the energy grid operator Infrax.
- No real contract between Infrax and the Municipality: Municipalities are the only shareholders of Infrax.
- The utility offers an integrated service covering from the feasibility study till the financial settlement.
- A combination of multiple financing solutions is being used (municipality's own resources, Infrax pre-financing, loans, NUHMA holding, ESCOFIN/Green Investment Fund, Limburg Climate Fund, loans).



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For further information: <http://www.escolimburg2020.be/>

Energies POSIT'IF, Ile de France, France:

Creating such a semi-public ESCO (Société d'Economie Mixte) addresses many of the obstacles to deep renovations which represent a crucial investment in order to achieve the European Union's energy and climate objectives for 2020 and 2050.



Indeed condominium home-owners are deterred from taking on debts for energy renovations because of the long payback times of deep renovations. The creation of this semi-public ESCO, through its comprehensive offer covering both technical and financial aspects, aims at countering this issue.

Financing structure: Owners' self-financing (including individual loans): 50%, Grants (including white certificates) pre financed by Energies POSIT'IF: 15%, TPF from Energies POSIT'IF: 35% (before the French banking authority removed the authorisation).



The overall capital of the SEM is € 5.32 M, which is divided between Ile-de-France Region (57%), Caisse des Dépôts and the City of Paris (9% each), the County Council 94 (8%), Caisse d'Epargne Ile-de-France (6%), other partners each holding less than 2% of capital.

Main barriers:

- *Lack of a legal definition in the French legislation. The “Banking monopoly” limited the company’s capacity of pre financing the works.*
- *Cost of feasibility studies: condominiums are not accustomed to pay for studies, only for works.*
- *The condominiums’ decision making process is not adapted to the “Pure energy performance contracting” (Each successive expense such as feasibility studies or thermal renovation budget, must be **decided** by the general assembly of co-owners.*

For further information: <http://www.energiespositif.fr/>



1.2. ESCO financing via Energy Performance Contracts: Energy Efficiency Milan (ELENA project, in Italy)

a. Key features and figures

- Promotion of Energy Performance Contracting with the help of technical assistance (ELENA).
- Envelope insulations, micro-cogeneration, heat pumps, condensation boilers, solar thermal, lighting sensors, building energy management solutions.
- Investments: 90 M € planned; 13 M € achieved for small municipalities, 5 M € achieved for the city of Milan.
- Key barrier: existing ESCO business model in Italy incompatible with EPC principles and banks' uncertainties towards energy efficiency sector.

a. Context

In Italy, Energy Service Companies (ESCOs) traditionally supply energy services contracts to the public sector which include both **energy-efficiency services** and **fuel supplies**.²⁵ It is more advantageous for Italian ESCOs who earn more money if they add supply of electricity and fuel to their offer. Non-bundled, "pure" Energy Performance Contracts (EPCs) are therefore limited even though these contracts offer a more effective solution for energy savings. This programme was the first in Italy to focus solely on energy savings and to introduce pure EPC on a regional scale. However previous policies did implement New Building Regulations and Certification, an Accreditation System for Building Certifiers, Energy Info Points as well as Zero-Rate Bank loans in the Province of Milan.

The Province of Milan has joined the Covenant of Mayors as a Support Structure in 2009, representing 65 small Municipalities. The Province had access to many Sustainable Energy Action Plans (SEAPs) and to more than 700 building audits funded by the Cariplo Foundation's Grant programme. The programme was therefore targeting the energy reduction set out by the Covenant which includes savings of at least 20% and emission reductions of about 9000tCO₂ every year.



**Provincia
di Milano**

²⁵ MICALE, Valerio, DEASON, Jeff, HERVE-MIGNUCCI. « Early lessons on introducing energy performance contracts in Italy: Milan's Energy Efficiency Program ». P.6. San Giorgio Group Brief. September, 2014.



In terms of economic goals, not only would this pilot project create energy bill savings for the municipalities through off-balance sheet financing of energy efficiency measures, but also it aims at giving birth to a mature ESCO market able to offer EPCs with guaranteed results. The project would finally increase the know-how of local administrations and lead to the creation of 900 permanent jobs²⁶.

b. The project

This project created a regional system of public building retrofitting based on an EPC approach. The Technical Assistance grant from the European Commission's European Local Energy Assistance (ELENA: 2.16 million total) programme, and a loan from the European Investment Bank (EIB: 65 million) helped:

- **Set up** the investment programme support unit;
- **Assess** existing audits, set baselines, analyse potential, draw the Terms of Reference and assess costs;
- **Prepare** the tender documents, the contracts, negotiate with suppliers and banks, handle any litigation;
- **Monitor** the results, disseminate and share the know-how among municipalities.

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c. Focus on the mechanism

While ESCOs implement energy efficiency works, the third party financing mechanism ensures immediate energy bill savings for the public administrations which have initially invested. By putting in place standard energy performance contracts with guaranteed performance, the programme manages to separate energy delivery from energy savings.

At the end of the renovation process, the municipalities pay their remaining fuel and electricity costs with a fee to the ESCO. The amount of this payment is recalculated every year on the basis of that year's energy bill.

The municipalities will receive a share of the guaranteed energy savings during the 15 year contract period regardless of actual performance. Therefore the ESCOs bear the risks of the works' effectiveness. Furthermore, if energy savings are lower than the guarantee municipalities will keep the difference from the ESCOs' fees. However, if actual energy savings are higher than the guarantee, the additional savings will be shared between the municipality and the ESCO.

A series of public calls for tender are organized by the Province in order to determine the ESCOs implementing the works. Each public call covers a group of the participating municipalities.

²⁶ Giunta Provinciale, 2010.

The San Giorgio Group's brief on this programme offers a clear overview of the financial flows established between the main actors.

- **Province of Milan**: Coordinates the investment programme through a Project Implementation Unit, with the support of external advisors. This group promotes and analyses project proposals presented by municipalities and provides technical assistance to their implementation. External legal and technical experts support the Province in coordinating and harmonizing energy audits, as well as for structuring the entire legal, economical and technical process (tender procedure with ESCOs and banks, monitoring and sharing results and transfer of knowledge to other provinces).
- **EIB - EUROPEAN INVESTMENT BANK**: Secures the financing of the programme acting both as **lender** for the financing of the energy efficiency retrofits, and as an **administrator** of a grant for technical assistance (ELENA). The EIB planned to provide a credit line for about EUR 65 million, covering up to 75% of ESCOs' investment, via a local financial intermediary (Intesa San Paolo/Mediocredito Italiano). The European Local ENergy Assistance (ELENA) was ready to cover 90% of the technical assistance costs (internal and external through consultants) needed to manage the development of the investment programme (EUR 2.16 million)²⁷.
- **ESCOs - ENERGY SERVICE COMPANIES**: Implement the retrofit works planned under the programme and offer a guarantee for savings on the energy bill of the municipalities (20% energy savings of annual consumption). They are funded by the local financial intermediary and use their own resources for additional costs. The companies are involved at various stages of the project development. Their responsibilities include a feasibility study, an intervention planning, and the installation and maintenance of the equipment. ESCOs bear the performance risk as well as an obligation to provide the balance of funding that the EIB credit line will not cover (around 25% of investment costs).
- **MEDIOCREDITO ITALIANO**: Intermediates lending between the EIB and ESCOs.
- **MUNICIPALITIES**: Make payments to ESCOs according to the actual energy consumption of buildings.
- **FONDAZIONE CARIPLO**: Has funded audits of municipal buildings in the Province prior to this programme. From 2006 to 2008 the Cariplo Foundation's grant programme financed

²⁷ Giunta Provinciale, 2010

energy audits of 3700 public building, in 650 municipalities with less than 30 000 inhabitants in the Province of Milan²⁸.

d. Main results

First tender, in August 2013:

- 98 buildings in over 16 municipalities.
- Energy and operations and maintenance baseline: 3.8 M€.
- Awarded for 13 M€.
- Proposed works: envelope insulations, micro-cogeneration, heat pumps, condensation boilers, solar thermal, lighting sensors, building energy management solutions.
- Guaranteed savings: 35%.
- Budgetary relief for municipalities: 5% of guaranteed savings.
- Duration of the concession: 15 years.

Second tender, from June 2013 to May 2014: went void for two consecutive times.

- Two lots, 197 buildings in 31 municipalities and with 7 ESCOs shortlisted.

Third tender, for the city of Milan, in August 2014:

- 38 schools
- Energy, operations and maintenance baseline: 2.3 M€.
- Awarded for 5.14 M€.
- Proposed works: envelope insulations, condensation boilers, solar thermal energy systems, solar PV, LED installation, lighting sensors, building energy management solutions.
- Guaranteed savings: 35.5%.
- Budgetary relief for the City of Milan: 15.5% of guaranteed savings.
- Duration of the concession: 15 years.

e. Main barriers for Energy Performance Contracting

• Barriers specific to the Italian market and/or this project

- i. The Italian EPC market is at the very beginning and Energy Supply Contracting is predominant over Energy Performance Contracting. The classical energy contracts “servizio

²⁸ ZABOT, Sergio. « 100 efficient and sustainable municipalities: Project Development Assistance supported by the Cariplo Foundation in Italy ». Presentation at the “Directors of energy agencies” networking event. 24th-25th June 2014. Brussels.

Energia” bundle supply of electricity and fuel with energy efficiency retrofits that offer 2 advantages:

- **Financial:** ESCOs profit from the fuel supply.
- **Administrative:** public administrations can launch individual tenders for energy services an supply rather than two separate tenders.

These contracts do not favour reduction of energy consumption since ESCOs can obtain energy bill reductions by merely offering discounts on the fuel, which lowers the performance risks and discourages investments in energy efficiency.

- ii. The major ESCOs, well capitalized and well inserted in the public market, tend to boycott tenders for EPC with guaranteed results because they prefer embedded contracts (refurbishment, operations and maintenance, fuel supply). These contracts are without cost separation and therefore without full transparency.
- iii. On another hand, small and medium ESCOs do not have sufficient capitalization to hold long and complex contracts and bank are reluctant about offering them loans.
- iv. Incapacity of municipalities to comply with appropriate trade-off between governance improvement and share of sovereignty that PPPs imply. Indeed, the transfer of competence regarding energy investments from municipalities to the province was one of the main obstacles and it is a problem especially in contexts of political divisions between levels of government. In this case only 16 out of the 30 municipalities that were contacted in the bid for the first lot of public buildings participated.

- **Barriers regularly identified in EPC implementation policies**

- i. Banks tend to not accept the cash flows generated by energy savings as main collateral and thus they adopt a very tight precautionary behaviour versus ESCOs against the risk of insolvency. It is generally difficult to engage bank in tender processes regarding complex programmes that target markets which are not very developed and involving innovative contracts such as EPCs.
- ii. Moreover, banks prefer financing projects based on their cash flows and their own collateral value than on the company balance sheets (as is usually the case in energy efficiency investments where mortgages on physical assets cannot back energy efficiency investments).

- iii. High transactions costs for the contractual arrangements and the low collateral value of energy-savings works obligate banks to accept only large investments projects (more than 5-10 M€).²⁹
- iv. The uncertainties perceived regarding the energy efficiency sector as well as the strictness of current Basel rules makes it difficult to create a market uptake through cost reductions and transparency.
- v. Lack of a market for Performance Bonds issued by independent Insurance Companies in order to insure customers if ESCOs fail to satisfy their performance contracts.
- vi. Deficit of legal and technical skills on EPC for small municipalities which cannot afford the costs of an external consultancy when preparing and carrying out complex tenders. External grant funding (both private and public) can in this case play a crucial role.
- vii. The “obligation to perform” specific to EPCs requires the understanding and the implementation of a monitoring and verification protocol.
- viii. During the energy audits there has been frequently detected a lack of reliable consumption data. A large number of municipalities do not record, or adopt rather arbitrary accounting systems of their operation and maintenance costs.
- ix. Still remains the technical problem to establish the heat losses of the building envelopes (the u-values are often over-estimated).
- x. The time needed to train the personnel and required to run administrative procedures, is often underestimated. Internal regulations may cause unforeseen delays in the implementation of the programmes.
- xi. Some costs are indirect and may be difficult to estimate. In the Milan programme these costs included:
 - the initial determination of energy use baselines
 - the preparation of the documentation needed for the tenders
 - the monitoring and verification of the works carried out by the ESCOs
 - the negotiation of changes occurring during the execution of the contracts

²⁹ MICALE, Valerio, DEASON, Jeff, HERVE-MIGNUCCI. « Early lessons on introducing energy performance contracts in Italy: Milan’s Energy Efficiency Program ». P. 6. San Giorgio Group Brief. September, 2014.

Unforeseeable expenses such as legal claims during the tender process may also paralyze local administrations and require additional legal advice³⁰

- xii. The benefits of energy savings occur over time and are not very relevant to the electoral concerns of the designated officials. Elections may therefore interfere with the participation in programmes such as this one.
- xiii. Other heavy institutional and market barriers remain to be addressed:
 - Legislative instability and complexity of bureaucratic procedures.
 - The "Stability Pact" limits the municipalities capacity to allocate equity funds for measures with long pay-back times (e.g. intervention on the building envelopes coupled within ESCO contracts).
 - Complex incentive systems and with different timing among all actors (EU, Member States, Regions, Local).
 - Opaque relationships with Banks in general.

Other documented cases:

The RE:FIT schemes outside London, Kent County Council (KCC), United Kingdom:

This EPC based scheme, originally tested and demonstrated in London, offers all public sector organisations (such as Councils) a streamlined procurement process for energy services by providing pre-negotiated, EU-regulation compliant contracts that can be used with a group of pre-qualified Energy Service Companies (ESCOs). The RE: FIT Framework provides guaranteed energy savings, on public sector buildings.

RE:FIT

The ESCO designs and implements energy conservation measures which enable organisations to cut running costs, energy consumption and carbon emissions. The ESCO guarantees the level of energy savings, thus offering a secure financial saving over the period of the agreement (the "Pay Back Period"). The contractor (ESCO) finances the works upfront and is repaid through the energy savings made from the property over the agreed period.

³⁰ ZABOT, Sergio, DI SANTO, Dario. « Guida ai Contratti di Prestazione Energetica negli Edifici Pubblici ». Ente per le nuove tecnologie, l'energia e l'ambiente and Federazione Italiana per l'uso Razionale dell'Energia.

Barriers to using this funding in the KCC case:

- Not enough complex, large buildings across Kent's estate to justify the works being undertaken. **The scheme's success relies on obtaining high savings on energy bills in order to justify the upfront costs of the contractor.** In KCC we only two buildings might have been viable, but they had already had energy efficiency works undertaken (LED lighting). The scheme would not have generated enough savings to agree a worthwhile repayment scheme with the ESCO.
- **Interest rates are higher when borrowing from the private sector, and private investors also want to benefit from the savings to cover their management fees.** Therefore, if KCC undertook the works by assuming the upfront costs, it would achieve more of the savings by avoiding paying a portion back to the ESCO for the installation costs and management fees.
- It is crucial for the local authority to have the **in-house skills to properly monitor the savings made.** This monitoring ensures that the local authority is achieving the savings that the ESCO estimated.

For further information: <http://refit.org.uk/>
<http://www.kent.gov.uk/>

Feedback from Streetlight-EPC projects in two partner regions

From the Carlow Kilkenny Energy Agency:

In Ireland, the main barriers encountered in energy efficient public lighting projects are linked to the unmetered supply and tariff structure for public lighting. Public lighting is unmetered and can only be billed on a billable wattage per lamp and burn hour basis. There are three burn hour profiles: dusk to midnight (1687), dusk to dawn (4150) and 24 hours tariff. The wattage can be changed on the national database for lighting retrofits to LED, but this does not allow trimming or dimming. **Without the realisation of energy efficiency savings there are no incentives for ESCOs to invest in large scale public lighting projects.** The local authorities' national representatives are currently negotiating with key stakeholders in order to come up with a solution.



The traditional maintenance contracts in Ireland are either procured on a per light basis or on a schedule of rates type contract. The maintenance time scale of contracts is short term, 1-5 year maintenance contracts. There is a lack of experience to move from traditional type

*maintenance contracts to an energy performance based maintenance contract in the Irish context. Kilkenny County Council through the Streetlight EPC project is currently investigating the form that the next maintenance contract will take in terms of energy performance. The move to a long term energy performance based contract would move the local authorities away from short term maintenance contracts with built in extensions to a longer term 15 – 20 year energy performance based maintenance contract. A **level of thrust and awareness of the Energy Performance contract model** would need to be established in Ireland both from a public sector point of view and the ESCO's themselves. This is also being worked on by CKEA through the Sustainable Energy Authority of Ireland and the Streetlight EPC initiative.*

*The bottlenecks in terms of financial models for EPC are mainly due to the fact that the financial models specified are new to Ireland and have yet to be tested. The EPC/ESCO market in Ireland is very young and therefore **does not have the experience in terms of projects implementation.***

From the Region of North-West Croatia:

*HEP ESCO (Croatian biggest ESCO Company) has implemented over 50 energy efficiency projects in different sectors (building retrofits, public lighting, industry and energy supply) until 2009. However, it is important to point out that almost all of these projects were **not pure EPC projects. Payments are based on a fixed level of energy savings which has been defined at the time of the contracting** (based on project documentation). In other words, energy savings were not verified and monitored during the project lifetime and there is no savings guarantee offered by ESCO.*



*In the past few years there has been a decrease in the number of projects implemented by the Croatian ESCO. One of the recurring reasons mentioned by many potential clients is the too high prices of their services. The required up-front costs coupled with the lack of savings guarantee are also considerable deterrents. This HEP ESCO project destabilized EPC market and created **lack of understanding and trust in EPC projects.***

There is a lack of experience regarding EPC projects in Croatia. Very high interest rates of grants or loans from commercial banks is making the EPC model rather expensive in comparison with own sources based investments.

*The general perception of EPC financial scheme by local authority representatives is that it is a **risky venture, still not well defined regarding contractual (legal) issues** and lacking in pilot projects as a learning ground.*



For further information: <http://www.streetlight-epc.eu/>



2. Loans and Funds

2.1. The Revolving Funds: The KredEx Revolving Fund (Estonia) and the Intracting method (Stuttgart, Germany)

- **The KredEx Revolving Fund (Estonia):**

- a. **Key features and figures:**

- Funds from CEB, public and ERDF transformed in grants and loans on a revolving model.
- Energy audits, renovations, reconstructions.
- Capital: 49 M€ in 2009; 72.6 M€ in 2013.
- Key barrier: lack of a clear legal framework to support this type of initiative which brings delays in the decision making process, building permits, and raises the transaction costs

- b. **Context**

KredEx is an Estonian financing institution founded in 2001 by the Estonian Ministry of Economic Affairs and Communications in order to help Estonian companies to develop faster and more safely by offering loans, venture capital, credit insurance and guarantees with state guarantee.

The bank also promotes the improvement of the Estonian population's living conditions through facilitation of purchase or renovation of households and energy efficiency retrofitting. KredEx



operates as a private company but is owned and governed by the Ministry.

Before the 2009 KredEx Revolving Fund, there was another grant scheme providing 50% grants for energy audits, building designs and technical expertise as well as 10% grants for renovations. About 7 000 apartment buildings were renovated under this grant scheme.

- c. **The project**

KredEx was inspired by the KfW (German public bank) energy retrofitting of buildings programme. During the first negotiations phase with potential investors, the following public and private institutions decided to contribute to the capital of the Revolving Fund:



- **The Council of Europe Bank (CEB)** – provided a loan of €28.8 M. It was selected out of several international financial institutions’ offers as it proposed the most interesting interest rates.
- **Estonian government** – provided a loan of €16 M (in 2013).
- **KredEx** – provided €10.1 M from the profits of its financial operations.
- **European Regional and Development Fund (ERDF)** – the European Commission agreed that the state of Estonia would allocate €17.7 M via the ERDF (this was achieved through difficult negotiations because at that time, housing was eligible for the ERDF financing under very difficult terms and EU funds were mainly delivered as grants, not loans).

The Revolving Fund was created in 2009 with the initial capital of 49 M€. In 2013, the capital was raised up to 72.6 M€. It was the first Energy Efficiency Revolving Fund in Eastern Europe.

d. Focus on the financing mechanism:

After receiving these funds, KredEx organized the delivery of low interest loans (“soft loans”) to two commercial banks, Swedbank and SEB, which would then provide loans to apartment associations, bearing the risk of the lenders. KredEx was therefore offering 4 types of financial support:

- **Grants for energy audits** and project design documents covering a maximum of 50% of the costs.
- Apartment building **loan guarantees** to associations and communities of homeowners for renovation of apartment buildings (provided by the Estonian state).
- **Renovation “soft loans”** to associations and communities of apartment owners for renovation of apartment buildings (financed by structural funds from the European Union and from additional loans from the Council of Europe Development Bank). These soft loans were delivered at an average 4% fixed rate for 10 years.
- **Reconstruction grants** to associations and communities of apartment owners for deep reconstruction of apartment buildings (financed by the ERDF and from the income gained from selling Assigned Amount Units to Luxembourg, under the Kyoto protocol). The grants were covering a maximum of 35% of the costs.

While the loans are being repaid, the Fund replenishes and offers the opportunity for re-usage of the collected funds, which were staying in state. This is the concept of the revolving fund. This fund was giving access to higher and with favourable conditions financial support through grants and loans, which were anyway needed for small or large scale reconstructions.

e. Main results

When the Fund was set up in 2009, KredEx' objective was to provide financing for at least 1 000 buildings. By the end of 2013, 798 buildings were renovated as follows:

- 415 buildings used a **combination of reconstruction grants and KredEx soft loans**,
- 185 buildings used only **KredEx loans**,
- 198 buildings used only **reconstruction grants**.

The home owners' interest rate was increased in 2010 when a renovation grant was introduced. By the beginning of 2014, the whole budget (€ 72.6 M) was nearly spent. However, about 20,000 buildings in Estonia would need to be refurbished. Further increase of the KredEx Revolving Fund capital is not foreseen for the moment.

f. Main barriers for revolving funds:

- i. A very long preparation time, 2 years.
- ii. Many parallel negotiations with several partners (international banks, local ministries, local commercial banks).
- iii. In spite of an active awareness campaign and targeted marketing activities, final beneficiaries remain reluctant. More time is needed in order to gain their trust and motivation.
- iv. No real opportunity to persuade end-beneficiaries, only raise awareness and motivate.
- v. Economic situation in the country can change dramatically and influence the behaviour of end-beneficiaries, but also weaken the political support of the financing programme.
- vi. Lack of a clear legal framework to support this type of initiative which brings delays in the decision making process, building permits, and raises the transaction costs.
- vii. Combination of different measures is a key to success but also complicates the whole setting-up of the financing scheme.
- viii. Information to market participants and end-beneficiaries – it takes couple of years for end-beneficiaries to be as active as you expect.

For further information: <http://kredex.ee/energy-efficiency/energiatohusus-korterelamus/>

Other documented cases:

The JESSICA implementations in Lithuania and Poland, Revolving Retrofit Guarantee Fund (Severn Wye energy agency), Romanian Energy Efficiency Fund.

Zagreb's Revolving Fund project, Croatia

The City of Zagreb is currently setting up a revolving fund that will implement the recycling of public funds model in order to finance building renovations for energy savings. The Regional revolving fund for the City of Zagreb will support energy revitalization of buildings through soft loans, guarantees and grants. The targeted size of the fund is € 100 million while the overall investment potential is estimated at € 500 million. The project is developed for and financed by City of Zagreb.

The lack of financial instruments and established models for financing energy renovation of buildings that recycle public funds were the main motives behind initiating this project. The fund will be based on the JESSICA architecture in order to be compatible with national plans for introduction of new financial instruments. Private sector funds will have to be mobilised to match the desired size of the fund. The fund will provide fully repayable investment finance (loans) in combination with public grant funding and technical assistance.



REGIONALNA ENERGETSKA AGENCIJA
NORTH-WEST CROATIA
SJEVEROZAPADNE HRVATSKE
REGIONAL ENERGY AGENCY

Main barriers:

- **Complex architecture** of the Fund (necessary time to develop and establish fully functional revolving fund).
- **Limited available grant funding** from public resources (Operational programme for ESIF and national Environmental Protection and Energy Efficiency Fund).
- **Unstable macroeconomic circumstances** and lack of investment capacity from citizens (low income households).

For further information: <http://regea.org/>

- **The Intracting method (Stuttgart) : Internal performance contracting**

- a. **Key features and figures**

- **Municipal internal performance contracting scheme.**
 - **The repayments of the works are used to finance other projects and thus a revolving dynamic is created.**
 - **Needs a thorough technical assessment of potential measures and overview of the potential savings throughout the entire administration.**

- b. **Context**

The “Intracting” method was first experimented by the City of Stuttgart. Stuttgart is a city of around 600,000 inhabitants in the centre of one of the most heavily industrialised German regions. Since 1976, the city of Stuttgart performs energy management tasks and carries out concrete measures for energy efficiency. Intracting proved to be an effective technique in reducing energy and water costs. The success of this financing model encouraged other cities and institutions to adapt it to their own context.

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- c. **Focus on the financing mechanism**

“Intracting” is a municipal internal performance contracting scheme based on the “Contracting” concept, but which is entirely financed from municipal budget funds. The energy department finances cost-efficient energy and water saving measures. The savings achieved by the technical department or by the municipally-owned company on their energy bills are used to repay the energy department until full replenishment of the capital invested. The technical department or municipally-owned company can then freely benefit from the savings. In a nut shell, the energy department provides zero-interest loans to finance specific measures with no increased charge for risks or rewards.

Nevertheless it is crucial that a comprehensive study of the potential energy savings and a cost-efficiency study be carried out before the activation of the intracting scheme. It is therefore very useful to have the right energy monitoring skills and responsibilities within the energy department.



- **Intracating is based on the following process:**

- The city's energy department or one of its technical departments submits an energy saving project.
- The project is studied by the energy department, which calculates the project's energy saving potential.
- If the payback period is acceptable and the project cost-effective, an agreement is signed between the contracting parties, i.e. the energy department on the one hand and the municipal department or company managing the building on the other hand.
- Repayments begin the year following the investment and end once the capital invested has been fully repaid.
- **The repayments are used to finance other projects and thus a revolving dynamic is created.**

This financing scheme enables cost-effective energy saving measures in spite of the municipality's budgetary constraints, therefore improving the municipality's financial situation. However, the upfront costs are a common barrier for many municipalities. Stuttgart took money from the municipal budget to set up the "Intracating fund". Other cities preferred to create a one-year fund to finance the initial measures, the savings delivered being used to create a revolving fund.

d. Main barriers specific to the "Intracating" method:

- i. The upfront capital for the initial measures can be difficult to raise.
- ii. Long payback periods.
- iii. In order to succeed, this model needs an office within the administration that can provide a thorough technical assessment of potential measures and overview of the potential savings throughout the entire administration.

Other documented cases of adaptation of the "Intracating" scheme:

Salix Finance Ltd, United-Kingdom:

Salix Finance is an independent, not-for-profit company funded by the Department for Energy and Climate Change, the Welsh Assembly Government and the Scottish Government via the Carbon Trust. This entity enables public sector organisations to increase their energy efficiency through zero interest loans aimed at financing investments in a variety of energy efficiency

projects. One of the compliance criteria is that the total payback must be achieved within five years, thus significantly limiting the fund's action scope. Salix projects have on average a lifetime of 13.5 years and have reached returns on investment in 3.5 years. Once the loan is repaid, the organisation continues benefitting from the energy savings for another 10 years.

By June 2013, Salix Finance had funded over 9 000 projects, with 661 public sector bodies, valued at £ 194 M (€ 220 M), saving the public sector £ 56 M (€ 65 M) annually, and £ 750 M (€ 881 M) over project lifetimes as well as delivering CO2 emission savings of 340 000 tonnes per annum and 4 5 M tonnes over the lifetime of the projects³¹.



Salix Finance works in partnership with 146 public sector organisations, providing “revolving funds” valued at £ 40 M (€ 47 M). These funds are available to local authorities and universities to finance ring-fenced projects, with paybacks of less than 5 years on average. The financial savings are used to repay the investment capital.

For further information: <http://salixfinance.co.uk/>

Twitter: [@SalixFinance](https://twitter.com/SalixFinance)

³¹ SCHILKEN, Peter, WYSSLING, Julia. “Intracting – Internal performance contracting”. P.13. Report prepared by Energy Cities. June 2013.

2.2. Soft loans: The Ecopack (Wallonia, Belgium)

a. Key features and figures

- **A public interest body offering zero rate loans for energy refurbishments.**
- **Repayment periods depend on revenue.**
- **Energy refurbishments + additional improvements.**

b. Context

The soft loan presented in this chapter is a financial instrument managed by the “Société Wallonne du Crédit Social” (SWCS). The SWCS is a public interest body (organisme d’intérêt public) that offers financial products such as mortgage credits and instalment loans. The terms of these loans are set by the regional government of Wallonia. The organization was created on 22nd of December 2000 by the Ministry of Housing. It is a public limited company, with a share capital of 15 775 043, 77 €, represented by 63 100 shares, of which 63 099 are owned by the Wallonia region and the “Association du logement social” (Social Housing Association). The new public service contract signed in October 2013 for a 5 years period between the SWCS and the Walloon regional government sets the company’s objectives in 5 areas of activity:

- Studies and analysis of the housing sector
- Financing operations through helpdesks: mortgage credits and the Ecopack
- Guiding and counselling of clients
- Promotion of research and experimentation in social mortgage credits.

The SWCS carries out its activities via its 22 helpdesks. These centres inform and guide the homeowners that wish to engage in energy efficiency retrofits.



c. The “Soft loan”

Since the 1st of May 2012, the Ecopack is a zero-rate instalment loan offered for energy efficiency enhancements of dwellings in Wallonia. It is a consumer credit with an amount that can

range from €2 500 to €30 000. The repayment period can be set up to 12 years, depending on the total taxable income:

- less than 18.700 € (cat. 1) : maximum repayment period of 12 years
- between 18.701 € and 34.200 € (cat. 2) : maximum repayment period of 10 years
- between 34.201 € and 51.300 € (cat. 3) : maximum repayment period of 8 years
- between 51.301 € and 93.000 € (cat. 4) : maximum repayment period of 5 years

The zero rate is fixed for all this durations. However some conditions need to be met by the building owner:

- The loan's value must be set between €2 500 minimum and €30 000 maximum.
- The building's initial construction permit must be dated before the 1st of December 1996.
- The building must be sanitary.
- The building must be on the territory of Wallonia.
- The homeowner must not have its workplace in that building, unless it is permitted by the SWCS.
- The loan applicant must be either the occupying homeowner or the tenant.
- The applicant must already occupy the place before submitting the loan request.
- The applicant's total taxable income must be evaluated within the acceptable scope (€18.700 - €93.000).



The works considered must also obey a few conditions in order to obtain the loan.

- The enhancements covered by the loan must be comprised of at least 2 types of works (which constitutes a package of works called “bouquet de travaux”), of which at least one must improve the energy performance of the building. Other small works can therefore be included (e.g. adding a thermostat) but also works that could be disconnected from the energy efficiency goals (replacement of the sewage system, replacement of the floors, lining of the chimney system...).
- Works must be carried out by contractors authorized by the SWCS.
- Works have to wait the SWCS' approval.
- A preliminary study of the home must be carried out in case of insulation of the walls or floors, unless an energy audit was already made.
- For the applicants with total taxable income of less than 18.700 € (cat. 1), thermal insulation of the roof is a package of works (“bouquet de travaux”) by its own.

- The adding of photovoltaic panels and micro-generation systems can be considered as part of the package of works, but benefits from a different financing instrument (certificats verts), and therefore is not covered by the Ecopack.
- The works must be carried out within a 2 year period.

An overview of the works covered by the Ecopack:

| Energy performance works | Other types of works | | | | |
|---|--|-------------------------|--------------|---|---|
| <ul style="list-style-type: none"> - Thermal insulation of roofs, walls, floors. - Replacing of window frames or of the glazing. - New ventilation systems. - Installation of a natural gas condensing boilers. - Installation of heat pumps. - Installation of biomass boiler. - Connection to a CHP network. - Carrying out of energy audits. | <p>Associated works (« travaux induits »):</p> <ul style="list-style-type: none"> - Replacing, repairing of the roof. - Exterior walls skin. - Dress the interior walls. - Replacement of the sewage system. - Replacement of the floors. - Lining of the chimney system. <p>Small works contributing to energy savings:</p> <ul style="list-style-type: none"> - Adding a thermostat. - Isolation of heating pipes. - Thermographic audit. <p>Works targeting renewable energy generation</p> <table> <tr> <th>Covered by the Ecopack:</th><th>Not covered:</th></tr> <tr> <td> <ul style="list-style-type: none"> - Solar thermal collectors for domestic hot water and/or heating. </td><td> <ul style="list-style-type: none"> - Photovoltaic panels. - Micro-generation systems. </td></tr> </table> | Covered by the Ecopack: | Not covered: | <ul style="list-style-type: none"> - Solar thermal collectors for domestic hot water and/or heating. | <ul style="list-style-type: none"> - Photovoltaic panels. - Micro-generation systems. |
| Covered by the Ecopack: | Not covered: | | | | |
| <ul style="list-style-type: none"> - Solar thermal collectors for domestic hot water and/or heating. | <ul style="list-style-type: none"> - Photovoltaic panels. - Micro-generation systems. | | | | |

d. Focus on the financing mechanism

The costs of the works are paid gradually as they are carried out and as soon as the applicant submits a new request of “release” of the funds. The payments are made directly on the account of the contractor or of the materials supplier. Before January 2015, a system of public aids (“primes Energie”) would usually automatically finance a part of the Ecopack loan, thus lowering the remaining amount to be reimbursed. These aids were also calculated on the basis of the revenues of the households. The 2015 reform of these aids suspended them till 2016 when it will again be made available to households.

With an outstanding debt of € 3 billion, and a yearly production of € 300 million worth of mortgage credits and € 60 million worth of soft loans, the financial management needed to be optimal. Therefore, as previously done in 2013, the SWCS diversified their financing sources in 2014. The entity issued € 75 million worth of high-quality commercial paper (medium and long term). It also received the second instalment (€52, 5 million) of a previous loan offered by the Council of Europe Development Bank (CEB). And lastly, the SWCS has borrowed € 80 million from commercial banks, loans that are guaranteed by the region of Wallonia.

e. Main results

8.389 households were renovated since the launch of the Ecopack (May 2012). In 2014, 3.041 contracts were signed (the goal was 3000), reaching a total value of €53 654 078. 1 446 of these Ecopacks were offered to households from the 1st and 2nd category of total taxable income (lowest revenues). The 3 types of energy efficiency retrofits greatest in numbers carried out concerned the roofs, the walls and window frames. On average, the works covered by the Ecopack amount to €16 837, with an average aid (prime) of €3 213.

f. Main barriers to soft loans

- i. The wide accessibility to this loan had created a windfall effect, overloading the SWCS' capacity of processing demands and lengthening the whole procedure.
- ii. An instrument limited to homeowners that are able to take on additional debt.
- iii. No wide-scale scheme has proven effective on a wide national scale.
- iv. It remains questionable to what extent demand does not remain artificial when it is only created by publicly incentivized loan.
- v. Transaction costs to implement (technically) and manage long-term programmes within financing institutions.
- vi. Increased regulations / provisions for (promotional) banks hinder commitments of credit lines (State-Aid-rules...).

- vii. Specific procedures have to be followed to select the partners (time consuming, strictly supervised, etc.).
- viii. Awareness of house owners who are not convinced that investing in energy saving measures is profitable.

For further information: <https://swcs.be/>

Other documented cases:

Community Energy Loan Scheme in Kilkenny (Ireland)

Through a project partnership with the Sustainable Energy Authority of Ireland (SEAI) and Carlow Kilkenny Energy Agency (CKEA), St. Canice's Kilkenny Credit Union has launched a new Community Energy Loan Scheme. A fund of €1 million has been made available for members who wish to carry out energy efficiency enhancements of their properties. The scheme will run until October 23rd 2015, unless all of the available funds have been depleted before this date.

Loans are offered at the reduced rate of 6.4% (APR 6.6%) for various energy saving works including:

- *The installation of attic or wall insulation.*
- *High efficiency boilers or stoves.*
- *The upgrade of heating systems including the installation of heating controls.*
- *Replacing windows or external doors.*
- *Installation of solar panels.*



In addition to this reduced rate, a total grant rebate of up to 30% of associated costs is also available under this scheme.

After submission of an "Expression of Interest Application Form", CKEA or their appointed representative will carry out an energy audit of the household. A fee of €100 for the Energy Audit must be paid to St. Canice's Kilkenny Credit Union. However, this fee can be refunded if the applicant is deemed ineligible to benefit from the scheme either from a housing or lending perspective, or is deemed eligible and proceeds accordingly.

Once deemed eligible to participate in the scheme and after the energy audit is complete, a member of staff from St. Canice's Kilkenny Credit Union contacts the application to discuss the loan requirements.

For further information: <http://www.stcanicescu.ie/community-energy-loan/>

The Amsterdam Investment Fund (Amsterdam, the Netherlands)

In 2011, the city set up a €75 million fund, the Amsterdam Investment Fund, available for projects in the fields of climate, sustainability and air quality. The fund was raised from the sale of shares in “N.V. Nuon Energy”, a former local utility company supplying electricity, gas and heat in the Netherlands. The main goal of these investments includes reducing CO2 emissions and energy bills for citizens and businesses. Through soft loans, the fund invests in financially-sustainable projects implemented by local businesses, residents, housing associations, and knowledge and community organisations. The fund is revolving as profits from the repayment of loans are being reinvested in the coming 14 years.



The city’s involvement in this type of funding encouraged banks to provide further financing³² for energy efficiency projects that otherwise would be deemed too risky, especially in their pilot phase.

The Delft Energy Saving Fund (Delft, the Netherlands)

In 2006, the municipality of Delft set up a fund as part of a wider range of instruments supporting local projects aimed at energy efficiency and renewable energy generation. It is the introduction of the “Delft financial energy regulation” that enabled to raise this fund. This specific local regulation was at that time part of the “Delft subsidy regulation” as required by the Dutch general Administrative Law Act.



This fund is made available to citizens and non-profit organizations through favourable low interest loans of approximately 1.5% rate (4% below the market rate with a minimum of 1.5%), with a 10 years maturity. The loans must be used to invest in renewable energy systems such as heat pump or solar panels and/or energy saving measures. Furthermore, the payment term equals the pay-back time of implemented energy measures. The fund will revolve after a certain time via the loan payments (credit instalments) replenishing it.³³

³² « Financing schemes increasing energy efficiency and renewable energy use in public and private buildings », a Comparative Analysis, p.9. Spring 2014. Prepared by Energy Cities.

³³ Ibidem, p. 22.

2.3. Guarantee Funds: The Revolving Retrofit Guarantee Fund (Severn Wye, United Kingdom)

a. Key Features and Figures

- 5% loan portfolio against the guarantee fund to mitigate risk to the creditor.
- Available to those who own and live in their home as their main residence.
- An affordability check is carried out by the creditor.
- A home energy advice report is carried out on the property. This helps the homeowner to understand what energy efficiency measures can be installed on their property and what savings they could potentially make.
- Severn Wye is working with two local councils, who are administering the scheme in different ways.

b. The Project

The Severn Wye Energy Agency together with the Aristotle University of Thessaloniki and the Cyprus Energy Agency, engaged in a project entitled “Countdown to Low Carbon Homes”. The goal of this project was to explore the retrofit process (“retrofit journey”) from the planning stage to implementation and post installation energy use. In order to properly assess the right delivery model, Severn Wye developed **two pilot loan schemes** in the Stroud district and in South Gloucestershire, offering households alternative sources of finance for their improvements.



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c. Focus on the mechanism

A **Revolving Retrofit Guarantee Fund** is a financial mechanism that makes loan finance more accessible and less expensive by providing a low cost guarantee. As loans are repaid this replenishes the fund providing capital that can be loaned out to other households.

- **Design and implementation**

This pilot loan scheme applied the **Revolving Retrofit Guarantee Fund** model developed by the Hungarian consultancy Global Environmental Sustainable Business (GESB) and successfully implemented by countries such as Hungary and Estonia. GESB helped with the replication of this model to the UK owner-occupier market. Severn Wye’s research regarding investments in energy

efficiency renovations prior to the Green Deal had revealed the need for a loan scheme flexible enough to cover all the measures and additional works.

Severn Wye and Global Environmental Social Business first needed to establish loan products adapted to the housing stock and to the potential in the local area. It was afterwards necessary to raise the funding for the guarantee fund and seek investors to provide loans. The project's research report³⁴ lists the different stages in the setting up of the pilot loan:

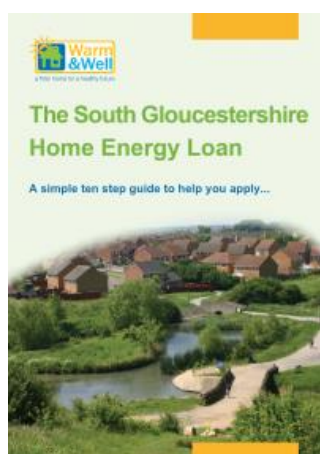
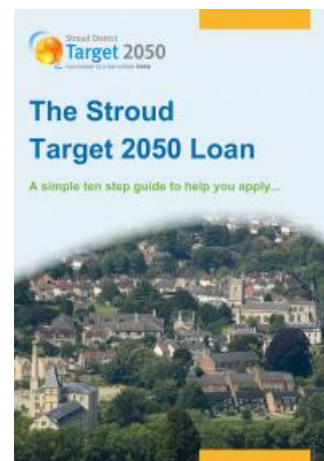
- **Collating and mapping local retrofit markets:** data on the housing stock and on the potential for measures in order to draw up a first portfolio of potential financiers.
- **Develop a draft prospectus:** including measures and estimates of costs and savings.
- **Identifying potential commercial partners:** GESB and Severn Wye compiled a list of potential commercial funders (banks) and spent several months contacting them to explain the programme (See "main barriers" Section below).
- **Establishing the Guarantee Fund:** four local authorities had supported the project from the start. Three of them agreed to put their own funds into a Guarantee Fund.
- **Establishing the loans pot:** identifying investors to provide loan capital proved unsuccessful. Therefore a reduced pilot loan scheme was launched with funds from the two of the local authorities (South Gloucestershire and Stroud District Councils), and from supporting charities such as Sainsbury Family Charitable Trusts and Severn Wye's own charity reserves.
- **Establishing legal agreements:** between the various parties involved.
- **Obtaining permissions, licences and verifying compliance with regulations:** financial service regulations for providing loans, consumer credit regulations for referring people for loans, and regulations regarding correct presentation of information on promotional materials.
- **Agreeing loan product details and processes:** loan duration, interest rates, fees, household eligibility, credit and affordability checking, and a clear map of the customer journey.
- **Promotion and marketing,** promotional materials, referral networks and marketing plans.

³⁴ CHARALAMBOUS, Anthi, HEALY, Audrey, MABY, Catrin et al. "Countdown to Low Carbon Homes: Delivering community scale retrofit of home energy improvements". SevernWye Energy Agency

- **Delivery:** in June 2014 both local pilots in Stroud District and South Gloucestershire were underway. By mid-October 2014, discussions had been initiated with over 180 interested clients and two loans had already been taken out (*see “Main results” Section below*).

- **The financing mechanism**

The guarantee fund is used to underwrite the losses to the lender should the borrowers miss a payment or default. If the loan goes into default the debt recovery process will start. If the loan is irrecoverable this can be recouped from the guarantee fund (up to the maximum amount in the guarantee fund). This guarantee “softens” the loan and makes it more widely available, potentially at lower costs as it reduces the risk to the lender. This instrument therefore **reduces the risk to the loans** provider by underwriting an appropriate proportion of the loan capital, and provides **guarantee funds at zero interest**.



The Stroud Target 2050 Loan is for a minimum of £2000 and a maximum of £10 000, including VAT and all charges, at a fixed interest rate of 5% per annum. The loan is for a minimum of three years and a maximum of five years.

The South Gloucestershire Home Energy Loan is for a minimum of £1000 and a maximum of £15 000, including VAT and any charges, at a fixed rate of 4%. The term of the loan is for a minimum of six months and a maximum of fifteen years.

A 5% charge (plus VAT) on the total cost of the works is payable to Severn Wye to cover the project management cost regarding both loans.

d. Main results

From the launch of the scheme to the end of April 2015, the loan was discussed with 151 clients in Stroud and 196 clients in South Gloucestershire. Four loans have gone ahead in South Gloucestershire and to date, unfortunately no loans have gone ahead in Stroud. The loan pilot projects are on-going.

e. Main barriers

- **Replication difficulties**

- i. At the identification stage of potential commercial partners, most of the large finance companies, including banks which were approached, were unwilling to commit to a new initiative outside the Green Deal at that time. Even though the aim was to run a full pilot loan during the three year “Countdown to Low Carbon Homes” project, the difficulties in raising funds and developing legal and financial processes delayed the launch until 2014. **Therefore, in case of replication, it is essential to understand that the ability to attract investment will depend on the financial climate of each country and of the availability of other schemes.**
- ii. Furthermore, working within a financial market has been a new area of development for Severn Wye. GESB provided specialist advice on the financial aspects of the project and also information on setting up the Revolving Retrofit Guarantee Fund. Without this advice it would have taken longer and potentially posed a greater risk for Severn Wye. **Therefore, if not an established provider of financial service (i.e. an energy advice organisation), specialist advice regarding loan schemes is needed.**
- iii. It is important to pay attention to the **context in which this financing scheme is implemented**. In this case the loan pilot was developed as part of the Countdown to Low Carbon Homes project and evolved as this project progressed. Therefore, the legal advice and support was not initially needed nor was it budgeted for.
- iv. When the “Countdown to Low Carbon Homes” project ended, Severn Wye had to ensure it received funding for the work on the project. Any charges made to the client need to conform to specific regulations, regulations that also prescribe how the annual percentage rate of charge (APR) is affected and how referrals are made. **Therefore, depending on the funding availability of this area of work, energy agencies looking to replicate this scheme might also have this challenge.**

- **Implementation barriers**

- i. The **expertise to set up a loan agreement** between Severn Wye and the other finance providers was one of the main barriers. This was in part because neither of the partners had experience in setting up legal agreements to facilitate this kind of working relationship.
- ii. Other difficulties included:



- establishing the **APR of the loan**,
- setting up the **client journey**,
- ensuring the **legal responsibilities** through the Consumer Credit Act were met.

Becoming **authorised under the Consumer Credit Act** was indeed a significant task. The Consumer Credit Act regulates financial activity in the United Kingdom and as clients would be directed to organisations that could provide credit, a credit brokerage licence was required. Interpreting the regulations without any previous experience of working within this market was challenging and time consuming. **Institutions that can provide the appropriate expertise are very costly.**

- iii. **If replicated, an appropriate marketing strategy must be developed for this type of product.** Indeed the complicated financial eligibility criteria, or application processes can deter or delay households and installers from starting or progressing with energy efficiency improvements. Pre retrofit households in the UK reported delays and confusion around funding for insulation work.

For further information: <http://www.countdowntolowcarbonhomes.eu/index.php/gb/project-reports-and-case-studies/>

Other documented cases:

Energy Efficiency and Renewable Sources Fund (Bulgaria), Retrofit Revolving Loan Guarantee Fund developed by the Global Environmental Social Business (GESB).

Energy Efficiency and Renewable Sources Fund (Bulgaria)

This Fund was established through the Energy Efficiency Act (EEA) adopted by the Bulgarian Parliament in February 2004 and operates according to its provisions. Its initial capitalization was entirely based on grant funds, its main donors being the Global Environment Facility through the International Bank for Reconstruction and Development (€10 million from the World Bank), the Government of Austria (€1.5 million), the Government of Bulgaria (€1.5 million) and private Bulgarian companies. Both the IBRD and the Bulgarian Government helped develop the rules and procedures of the fund through comprehensive technical assistance.



**ENERGY EFFICIENCY AND
RENEWABLE SOURCES FUND**



Based on a public-private partnership, the EERSF is a lending institution, a credit guarantee facility and a consulting centre. Its structure provides assistance to Bulgarian enterprises, municipalities and private individuals in developing energy efficiency investment projects and guarantees before other financing institutions.

The fund is made available for the following types of projects:

- *Energy efficiency enhancements in industrial processes.*
- *RES projects targeting end user consumption.*
- *Retrofitting of building.*
- *Improvements of heat sources and distribution systems.*
- *Street lighting.*

For further information: <http://www.bgeef.com/display.aspx?page=about>



3. Green Bonds: The Örebro Green Bonds (Sweden)

a. Key features and figures

- Örebro's first issue of green bonds, worth SEK 750 million.
- 5 years maturity.
- Örebro's in-house bank supplies the company sector with financing.
- Örebro has an AA+ rating from Standard & Poor's and have a range of funding options that helps reducing financial risk.

b. Context

Örebro is expanding and 143 000 people live in the municipality. The population has increased by approximately 2000 people per year in recent years and the trend continues. In 2020 the population is calculated to be 153 000. Therefore, demand is high for new housing, schools, retirement homes etc. There is also a substantial need for renovation of the property portfolio. Needless to say that Örebro's debt will be increasing the next few years.

The municipality has an ambitious environmental programme demanding large investments in order to achieve objectives such as self-sufficiency in renewable electricity by 2020. KumBro Vind, which Örebro owns jointly with the municipality of Kumla, will operate wind power plants that produce 100 – 150 GWh annually, providing electricity for 20 000 households. To reach that goal, 15 – 20 wind power stations will be built and started up at a cost of approximately SEK 500 million.



Örebro is the second Swedish municipality that has started issuing green bonds to finance low carbon and environmentally sustainable investments. In September 2013, Gothenburg in western Sweden was the **first city** to use green bonds to fund public investment by selling off 500 million kronor. Örebro seeks this way to achieve the objectives of its environmental programme, along with the associated climate change, water, waste disposal and natural heritage plans, and Transportation Programme.

The Centre for International Climate and Environmental Research (CICERO) in Oslo has performed an examination of the Green Bonds project and approved the environmental areas to which the green investments will be channelled.

c. The Project



Örebro has an AA+ rating from Standard and Poor's and have a range of funding options that helps reducing financial risk. One way of getting new investors and to broaden the funding options has been issuing the green bonds within the MTN – programme of the municipality. Örebro issued its first green bond, worth SEK 750 million, in October 2014. The municipality reserves the money it borrows for environmental projects and deposits it to a transparent account that has been set up for that purpose. The maturity of the bonds is 5 years.

d. Focus on the financing mechanism

Green bonds are no different from other instruments, with the same terms when it comes to risk, yield, legal status and availability of documentation. A bond is a type of loan which companies, governments, and banks use to finance projects. The issuer of the bond (the borrower, in this case Örebro) owes the holder (the creditor) a debt and is obliged to pay back the amount lent within a certain amount of time and with a certain interest. Green bonds are the bonds where the proceeds are allocated to environmental and climate change projects. Energy efficiency projects fall within this scope.

The green bonds are issued under same documentations, are governed by the same legal framework and use existing issuance programmes as regular bonds. To issue a green bond a framework is needed. The framework establishes what the "Eligible Projects" are, how the projects are selected, and how the reporting will be done. To ensure the framework is correct and that the eligibility criteria meet the institutions' environmental objectives, a second opinion from a research institute or a similar organization was needed. As mentioned in the Framework of this Green Bond initiative, an amount equal to the net proceeds of the issue of the bonds will be credited to a special account that will support Örebro Kommun's lending for eligible Projects.

The eligible projects are partially or entirely financed by the bonds. These projects are selected by the finance committee, after the proposals were jointly created by the Treasury and Sustainable Development departments. These proposals are based on Örebro Kommun's Environmental Programme together with the Investment Programme. Eligible projects include projects that target mitigation of climate change (also called "Mitigation projects"), including investments in low-carbon and clean technologies, such as energy efficiency and renewable energy programmes and projects. The projects can also target climate change adaptation or contribute to a sustainable environment (as opposed to directly addressing climate change issues). The eligibility criteria are set in the framework which is based on principles established by SEB and the World Bank, and approved by CICERO.

Before the issuing of the Green Bonds, the Örebro municipality met with investors and presented the framework and the projects that would be financed. After the issuing, the

municipality has a current reporting about the development of the projects on its website. Moreover, an annual investor letter guarantees transparency by providing a list of the financed projects, and a selection of project examples as well as a summary of the Green Bond development. This enables the investors to follow the evolution of projects and provides insight on the prioritised areas. This investor letter is made publically on Orebro Kommun's website.

e. Main results

To date, 280 million of the SEK 750 million has already been spent on developing the projects. The following projects were approved in accordance with the framework as of 31 December 2014:

- Wind power plants (total investment: 400 SEK million; consumed in 2014: 100 SEK million).
- Parloken, passive apartment building (total investment: 51 SEK million; consumed in 2014: 51 SEK million)
- Studentcity, 140 apartments for students in central Orebro (total investment: 190 SEK million; consumed in 2014: 49 SEK million)

f. Main barriers and bottlenecks

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- i. The debt capacity of the borrower is one of the classic barriers for this scheme.
- ii. A scheme that can be set up only by big municipalities.
- iii. Demands a considerable amount of preparation and administrative tasks, implying the need of in-house skills.
- iv. Policies can change and have a dramatic effect on the bond market which is greatly exposed to political changes and reforms.
- v. Lack of a clear definition and of standards regarding green bonds.
- vi. Issuers need to provide a minimum level of assurance to investors: green quality of the building financed, external verification of the use of proceeds, management of proceeds and environmental impact measurement.
- vii. Minimum size of projects.
- viii. Unreliable reporting and governance of the use of proceeds (risks linked to the actual results of the project and on its sustainable energy objectives).

For further information: <http://www.orebro.se/>

Other documented cases:



City of Gothenburg (Sweden)

The City of Gothenburg issued the very first Nordic “green” bond in September 2013 for SEK 500 million. They returned May 2014 to the market for green bonds for the first time since September 2013. The City managed to issue a total of 1.8



billion SEK. The bonds are due in June 2020, with a coupon of MS / Stibor 3m plus 37 bp. About 20 investors were in the book and the process took no more than 2-3 hours. Some of the investors were new to the City, which is in line with the City’s goal to broaden the investor base. The proceeds from the green bond are used to finance projects defined under the City’s framework for green bonds that target:

- *mitigation of climate change, including investments in low-carbon and clean technologies, such as energy efficiency and renewable energy programmes and projects,*
- *adaptation to climate change, including investments in climate-resilient growth,*
- *to a smaller extend (max 20%) projects which are related to a sustainable environment rather than directly climate related.*

The City of Gothenburg was a pioneer in the Nordic region for this type of financial instrument, developed by SEB together with The World Bank and other Swedish investors. The following projects have been financed in Gothenburg by Green Bonds:

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- *Lackarebäck waterworks and cleaning filters – water treatment using*
- *ultrafiltration, using the largest ultrafilter ever built in Scandinavia*
- *GoBiGas – large-scale production of biogas by gasification*
- *Electric vehicles for the city’s administrative offices and companies*

The projects financed via Green Bonds aim to contribute to Gothenburg reaching its environmental targets. The city returned to the market for green bonds on the 23rd of June issuing a SEK 1.05 billion fixed rate note maturing in 2021, amounting to a total of SEK 3.36 billion in green bonds for the City of Gothenburg.

For further information: <http://finans.goteborg.se/en/greenbonds/>

Varna (Bulgaria)



In 2002, the city of Varna in Bulgaria issued municipal bonds to obtain financing for an energy efficiency project involving retrofit and modernisation of the city's street lighting. The bonds raised €3 million, and the simple payback of the project was 2 years and 9 months. The municipality collected relatively high volumes of financing by issuing general obligation bonds at 9%. Repayment of the bonds was done in three equal portions during a three year period, primarily as revenue bond emission through the savings.

Ile de France Region (France)

Ile de France issued their first green bonds in March 2012, when in half an hour they reached a 175% subscription rate from investors. While the Region had prepared a € 200 million issue, they had to raise their order book to € 620 million. Eventually, 350 € were raised and were going to be used for sustainable energy projects such as energy efficiency retrofits in social housing. On the 14th of April 2015 Ile de France issued their second green bond, called "Green and Sustainability Bond", to finance a large mix of green investments. Interest rate was expected to be 20 basis points above French Treasury bonds, but was finalized at 18 basis points above which translates into €120 000 less interest paid out each year than expected.

The region went on the market looking for € 350 million. After one hour they closed with EUR750 million of orders. They ended up issuing € 600 million. The most recent Ile de France bond was largely placed with French investors; this green bond has slightly broader appeal, with buyers down to 76% French this time, 12% German and Austrian, 9% Dutch, and even a US fund manager. Third party review (called a "Second Opinion" in this case) was done by Vigeo. Proceeds of the bond will be used for a broad array of investments, including:

- *Construction and renovation of buildings, including high schools, with an "eco-construction" objective.*
- *Public transport with a "sustainable mobility objective", including a tramway extension and dedicated bicycle lanes.*
- *Energy efficient buildings for accommodation for vulnerable people and the elderly, and for social housing.*

4. An overview of existing citizen inclusive approaches

4.1. Crowdfunding platforms

- The REGEA's (Croatia) crowdfunding platform project

a. Key features and figures

The first crowdfunding platform in Croatia was established in 2014 and was based on the donation and equity models. Two smaller civil sector projects (around € 10.000) have been funded already with several others in pipeline. A new project initiated by REGEA plans to establish a regional crowdfunding platform specifically designed for financing energy efficiency and renewable energy projects in 2015.

b. Context

The Centre for Social Innovations and Sustainable Development created the first crowdfunding platform in Croatia and has started working with REGEA on establishing a new energy efficiency and renewable energy sources platform. The idea behind the project is to create a direct way for citizens to invest in infrastructure benefiting their own communities.

c. Focus on the financing mechanism

For the moment, the only existing crowdfunding platforms in Croatia are based on donation/reward and equity model. Creating a new platform for sustainable energy projects would introduce the lending model with interest rates lower than those of commercial or development banks, but based on the risk level of the investment. A working definition for this model of crowdfunding is: *“Open calls to the wider public by fund seekers through a third party, typically an on-line platform, to raise funds for a project or for personal purposes, in the form of a loan agreement, with a promise to repay with (or in certain cases without) interest. The fund raisers may include individuals, start-up companies or existing SMEs that are seeking an alternative means of funding, rather than the traditional credit market.”*³⁵

³⁵ “Opinion of the European Banking Authority on lending-based crowdfunding”, p.8. 26th of February 2015.

d. Main barriers

- i. Lack of a regulatory framework in Croatia specifically adapted to Crowdfunding.
- ii. No proof of concept, lack of projects implemented through this scheme.
- iii. The equity model is hindered by high costs for alternation of funding contracts of Ltds.
- iv. Potentially high risk levels for investors (no collaterals and no refund obligations).
- v. Low awareness level both among investors and project developers since it is an alternative financing mechanism.

For further information: <http://regea.org/>

- **Green Crowding – crowdlending model**

Green Crowding is a crowdlending online platform for concrete sustainable projects, such as solar panel installations on a school and LED lighting in a pharmacy. Green Crowding enables renewable cooperatives and similar project developers find finance from their local communities by making optimal use of online marketing channels and building a good relationship with their investors³⁶. Local community projects also receive advice regarding legal procedures and contracts. Green Crowding's activities are financed via a commission fee from the recipient of the investment.

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For further information: <http://greencrowding.com/>

- **Bettervest – crowdinvestment model**

Founded in 2012, Bettervest is the world's first crowdfunding platform for energy efficiency projects of companies, NGOs and local authorities. The money is collected on an escrow account until the funding goal has been reached and the energy efficiency project can be carried out. Each project must have been evaluated by an external energy efficiency consultant. A fixed percentage of the savings is distributed to the "crowd" until the investment plus a previously agreed upon profit has been paid back. Producers and sellers of energy efficient products as well as energy efficiency consultants can use Bettervest as a sales and marketing platform. Bettervest receives a percentage of the overall funding sum for each energy-efficiency project for handling and administration (10% once after the funding has finished and 1% on a yearly basis, during the contract period).

³⁶ <http://www.crowdfundres.eu/partners/green-crowding/>

Concerning the risks related to crowd-investment managed by Bettervest:

How are the investments secured?

For each project, the creditworthiness of the project developer is presented in the form of a credit index, which was established by the financial information agency "Creditreform" in order to assess the risk of insolvency. Furthermore, the savings potential of all projects is estimated by an external energy consultant.

The investor himself may contribute to the security of his investments by allocating the amount to several projects.

What if the project developer is insolvent?

In this case the investors will receive a refund of their loan only after all other creditors are reimbursed (e.g. banks). The bankruptcy may therefore lead to a total loss of the investment. Small investments are advised so that the risk for individual investors remains manageable. Diversifying its capital in various projects is crucial.

What happens if Bettervest is unsuccessful?

The funds collected from investors do not land directly at Bettervest, but are kept on an independent escrow account, whose ultimate beneficiary is the relevant project developer. Bettervest is merely the "intermediary" between the project leaders and the investors.

For further information: www.bettervest.de/home

4.2. Cooperatives: Les “Centrales Villageoises”³⁷ (Rhône-Alpes, RAEE, France)

a. Key features and figures

- Another example of European Structural Funds being utilised for alternative financing schemes in sustainable energy projects.
- Pilot projects creating local companies.
- Citizens and municipalities are shareholders in the same cooperative.
- Replication of these cooperatives has provided proof of concept.

b. Context

The idea emerged in 2010 when several Regional nature parks³⁸ from Rhône-Alpes noticed the rise in number of renewable energy generation projects that didn't benefit the local economy nor contributed to the territory development. The Rhône-Alpes Energy and Environment Agency (RAEE) and the Regional nature parks have decided to build a new model of renewable energy generation based on the following principles:



- Active involvement of the municipalities and local population
- Produce economic benefits in the region and contribute to local sustainable development
- Creation of an easily reproducible model for Regional Parks

The concept revolves around the involvement of the rural community in the generation of its own renewable energy and the replicability of the cooperative model.

c. The Project

From 2011 to 2013, pilot projects of “Centrales villageoises” in 8 different territories, scattered across 5 Nature parks, were engaged. These pilot projects were carried out in 4 stages:

- **Local mobilisation** (“animation locale”) : RAEE representatives from the local energy-advice points (Espaces Info Energie), the Regional nature park, the federation of municipalities (“Communauté de communes”) and consultants identified citizens able and

³⁷ Village Photovoltaic plants

³⁸ Public establishment in France between local authorities and the French national government covering an inhabited rural area of outstanding beauty, in order to protect the scenery and heritage as well as setting up sustainable economic development in the area.

willing to get involved in the legal vehicle that was about to be created. This phase also allowed the agency to identify which citizens were willing to offer their roofs for photovoltaic installations.

- **Landscape studies:** these studies were undertaken by landscape architects and the Regional nature parks in order to assess the landscape specificities and form recommendations for the proper incorporation of the new photovoltaic equipment.
- **Feasibility studies regarding the solar panels:** several experts examined some of the offered roofs. Such studies were done also regarding the connection to the electricity grid by ERDF (the French Distribution System Operator) and proved the lack of cost-effectiveness for implementing such improvements on certain buildings.
- **Legal studies:** the RAEE, with the aid of external law experts (lawyers, professors...) conducted legal research into the most appropriate legal vehicle before establishing that local companies, "*sociétés locales*", was the right scheme. Several options of legal form were considered and chosen according to each context.

Indeed, the creation of these plants is based on the set up of local companies that involve the participation of citizens and local authorities in their funding. The citizens are shareholders in these companies that can be set up under two forms:

- **SCIC** (société cooperative d'intérêt collectif): a multistakeholder (individuals and municipalities) form of cooperative based on community interest and less on the shareholder's benefit. The collective interest prevails and enables the participation of the community to the corporate governance capital (up to 20%).
- **SAS** (société par actions simplifiée): a simple to create company in which the statutes are flexible and are left to the will of the associates.

Even though it varies from one local company to another, these companies have a cooperative governance based on a majority of citizen shareholders. In 2013 the first local companies were created and started the setting of solar panels:

- Submitted demands for grid connection
- Signing of the rents for the roofs
- Banking agreements...

In august 2014, the first Village Photovoltaic plant became functional in Haies village (Pilat Nature Park).

- Is this model applicable to energy efficiency?

The local companies have in their Statutes enclosed the objective of promoting energy efficiency. However, for the time being, the benefits resulting from renewable energy generation are not enough to finance energy efficiency measures.

d. Focus on the financing mechanism

The website of the project provides a tool kit offering legal solutions on how to include citizens' savings in the capitalization of the local companies³⁹. However, the 4 stages of the pilot projects were financed through a variety of different sources:

- The MED programme⁴⁰ together with the Enerscapes project helped mobilize 163 500 € for the pilot projects in Rhône-Alpes.
- The FEADER programme⁴¹ also enabled three of the federation of municipalities involved in the pilot project "Leader Vercors-Trièves" to carry out their experimentation. 57 750 € were provided for the works on the areas of the photovoltaic installations and for the local mobilisation. Additional 53 900 € were used to enter the operational phase. Two other pilot projects received 44 100 € under this programme.
- The ERDF also provided funding for three of the pilot projects (Bauges, Gervanne, Baronnies) with a total amount of 269 000 €.
- The Regional Council of Rhône-Alpes mobilized 54 500 € and 187 000 € for the pilot projects.
- The RAEE brought 43 000 € of their own funds for these pilots projects.
- The French DSO (Electricité Réseau Distribution France) has also participated to the budget.

More than 500 000 € were invested over a period of five years. The works for the installation of the solar panels are entirely financed by the local companies. Since the pilot phase was fruitful and created a functional mode, for the new projects the development phase considerably less costly and therefore almost no subsidies or grants are needed.

³⁹ http://www.centralesvillageoises.fr/web/guest/capitaliser_societelocale

⁴⁰ The MED programme is a transnational programme of European territorial cooperation. It is financed by the European Union as an instrument of its regional policy and of its new programming period. It continues the tradition of the European programmes for cooperation (previously named Interreg). The transnational setup allows the programme to tackle territorial challenges beyond national boundaries, such as environmental risk management, international business or transport corridors. So far, 155 projects have been programmed, co-funded by the European Regional Development Fund (ERDF) up to a rate of 85%.

⁴¹ This instrument, which was established by Regulation (EC) 1290/2005, aims at strengthening the EU's rural development policy and simplifying its implementation. In particular, it improves the management and controls of the rural development policy for the period 2007-2013.

e. Main results

Between 2011 and 2012 in Condrieu Region, various public debates were organized in order to involve the local population in devising a photovoltaic installation project and deciding its location. Four type of studies were carried out: specificities of the bourg (rural agglomeration), the landscape, technical investigation (roof inclination, exposure to the sun), and architectural evaluations. In order to lead the project, in 2013, the citizen company “SAS Centrales Villageoises de la Région de Condrieu” (CVRC) was created. Its president, Hervé Cuilleron, is supported by a Management Board (9 members) and 166 shareholders (inhabitants of the Condrieu Region, two associations, and one enterprise).



In January 2014, the CVRC Management Board chose the installer. In February, about 100 shareholders participated in the General Assembly of the local company; on the basis of studies and by unanimous vote, it was decided to launch the operational realization of the PV plants in the municipality of Les Haies. Between May and July 2014, 8 photovoltaic systems were installed. Local municipalities and project stakeholders inaugurated the plant on 18 October 2014. The plant consists of 523 m² (8 roofs), 76 kWc, 85,3 MWh/year.

Similar dynamics led to other results:

- Monts d’Ardèche, Eyrieux-aux-Serres (102 kWp, 10 buildings)
- Vercors, Gervanne Raye (70 kWp, 11 roofs).
- Bauges, Plateau de la Leyse (75 kWp).

On the 25th of April 2015, the first photovoltaic project of the SAS Centrales Villageoises PERLE in the municipalities of La Thuile and Puygros, was officially launched. On the 13th of June 2015 will be inaugurated the first photovoltaic project of the SAS Centrales Villageoises of Gervanne Raye (50 kWc), in the Plan-de-Baix municipality.

f. Main barriers and bottlenecks

- i. Banks are reluctant to invest in this type of projects.
- ii. The incorporation of architecture and landscape with the PPV plants was and still is a major challenge for these projects. Historic buildings have specific constraints that need to be addressed. The installations must therefore be carried out in respect of the heritage and architecture, which complicates and lengthens the process.



- iii. Hurdles in the connection to the electrical grid proved that having political support is a decisive factor. Therefore, changes in the political landscape on the municipal level affect the success of the project.

For further information: <http://www.centralesvillageoises.fr/web/guest/accueil>

Other documented cases:

Gussing and other Rescoops such as Sifnos, Energie Partagée (France).

For further information:

<http://rescoop.eu/>

<http://energie-partagee.org/>



4.3. Sustainable savings account: le livret d'épargne de la "Troisième Révolution Industrielle" (Nord-Pas de Calais, France)

a. The project

The « Livret d'Epargne de la Troisième révolution industrielle » is a savings account created as a financing instrument for sustainable energy projects contributing to achieving the « Troisième Révolution Industrielle » Master Plan (Jeremy Rifkin's 2050 sustainability roadmap for the Nord-Pas de Calais region in France). The savings account and the selection of projects financed by the deposits are managed by the "Crédit Coopératif". It is a diversified banking group, which offers a wide range of banking products and services, especially to businesses and organisations. It is a structure that was created during the Social Economy movement of the late 19th century that led to the creation of today's large mutual banking groups. Owned by its clients, "Crédit Coopératif" is a co-operative bank, which assists and accompanies the creation and development of co-operatives, mutual organisations, small businesses, trade associations and work committees. The creation of this sustainable savings account is based on a joint partnership between the "Chambre de Commerce et d'Industrie de Région Nord de France" (North of France Chamber of Commerce) and the "Crédit Coopératif".

b. The financing mechanism

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- **The terms of the deposit**

The savings account offers a 1.75% interest rate per year for deposits under €1 500 in order to encourage students and other individuals with modest revenues. For deposits of over €1 500 the interest rate decreases to 0.8%, with a maximum deposit of € 100 000. Deposits can be made both by natural and legal persons. The savings account can be obtained all over France since the 22nd of January 2015. The funds are guaranteed by the "Crédit Coopératif". These deposits can be lent out as soft loans

- **Eligibility of projects**

The projects eligible for obtaining financing from this mechanism must contribute to one of the 5 pillars of the Master Plan for the "Third Industrial Revolution" in Nord-Pas de Calais:

- Renewable energy sources.
- Converting buildings into Power Plants.
- Hydrogen and other energy storage technology.
- Smart Grids Technology.



- Plug in, electric, hybrid and fuel cell base transportation.

Three other topics were included among the eligible projects:

- Energy efficiency
- Circular economy
- Product-service systems

ESCOs are eligible for the soft loans. Projects must require a minimum of €12 000 financing.

The transparency of the funds is ensured through an online information system monitoring project developments. Brochures on the funds raised and showing their use is also made available for the depositors. Once a year, a meeting between project leaders and depositors will be organized.

c. Main results

After 4 months since the official launch of the savings account, there were 800 subscriptions amounting to a total of €5 million worth of deposits, of which approximately €2.5 million represent deposits made outside the Nord-Pas de Calais region.

d. Main barrier

- i. Banks were very reluctant in engaging with the Chamber of Commerce in such a financing mechanism.

For further information:

<http://www.credit-cooperatif.coop/offre-personnes-morales/placements/livret-troisieme-revolution-industrielle/>

<http://www.latroisiemerevolutionindustrielleennordpasdecals.fr/>

Other documented cases:

The savings account of the “Triodos” bank (Belgium).

4.4. “Towards Resource Wisdom”: a crowdsourcing experimentation programme of sustainable solutions (Finland)

a. The Project

The project “Towards resource wisdom” was a joint project between the city of Jyväskylä and the Finnish Innovation Fund “Sitra”. The project’s goal is to finance the execution of several practical experiments and to create prototypes of scalable sustainable solutions that contribute to the Jyväskylä Roadmap 2030/2050. The aim of these pilots were to test new, innovative and effective “resource wise” ideas into practice in order to identify best practices for saving natural resources, raw materials and energy. The small scale of the projects offers a certain flexibility and innovative ideas can be tested prior the full scale projects. This flexibility enables project leaders to utilize the failures. Indeed in some cases the learning process arising from failures is as valuable as the one linked to successful projects.

Pilot projects were carried out on the following topics:

- Local renewable energy and energy efficiency,
- developing public transport and light traffic solutions,
- local food and urban farming,
- reducing food waste,
- enhancing the use of space and the material cycle,
- water efficiency,
- public procurement practices.

The “culture of experimenting” was considered an opportunity to implement new forms of stakeholder participation and to promote subsidiarity in society⁴². Collecting ideas for sustainable solutions directly from local residents and involving them in their implementation has also provided acceptance from the local communities for advancing resource efficiency and sustainable development, acceptance that is otherwise in some cases a considerable barrier for such projects. This “culture of experimenting” is related to design-thinking (as seen often in product development and manufacturing), where development is an iterative process: create a prototype, test and develop it before you introduce it to the markets. In the beginning of the project, residents left over 200 ideas, of which 15 were executed in 1-4 week-long pilots with a minimal budget (each pilot was €8000 max.).

⁴² “Showcasing Resource Wisdom in Cities” Workshop 5 summary, World Resources Forum, Arequipa. 21st of October 2014.

b. The financing

The financing of these pilots came from the Sitra fund. After the project, the financing sources are divided. The city of Jyväskylä is continuing the pilot projects as a part of its organization's own development. The city has a ring-fenced budget for these test projects that not only include energy efficiency, but also various "resource wisdom" related projects that aim at reducing the use of natural resources in the city's organization.

On the other part, the Federation of Finnish Enterprises Central Finland organizes crowdsourcing and deals more with new innovations. Their initiative is mostly focused on the enterprises and is partly funded by the Regional Council of Central Finland. The energy efficiency is not the main goal of their projects.

c. Main results

In the beginning of the project, residents left over 200 ideas, of which 15 were executed in 1-4 week-long pilots with a minimal budget (each pilot was €8000 max.). 25 000 residents participated.

The most successful prototype has been the model for selling leftover lunch in schools for near-by residents. This prototype was launched in one school in Jyväskylä, and has now been replicated in up to 20 different Finnish cities.

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Among the other projects that were carried out, the "Local food and resource wisdom for public catering" project aimed at enabling the use of locally produced food by the public sector catering services in Finnish local authority areas. The project also aimed at identifying availability, purchase price and logistics-related obstacles to the procurement process, and eliminating them in co-operation with the municipal procurement centre, online wholesale distributors and producers. Recipes and product development based on locally produced ingredients are another aspect of the project, in which producers, kitchen staff and customers are all involved. Another aim was to raise awareness among decision-makers on the impact of local food use on the regional economy. The project was administered by the Jyväskylä University of Applied Sciences. Other partners included the city-owned catering service Kylän Kattaus and the municipal procurement centre.

In 2015, the key activities target:

- Real-time energy monitoring.
- Public awareness campaign.
- Development of green Public Procurement criteria.
- Ban on organic waste.
- Reduce food loss by 10% in public buildings.



- Implementation of SoilGIS to drastically reduce soil use.

For further information: <http://www.sitra.fi/en/ecology/resource-wisdom>



IV. Overview of the barriers

Barriers to implementation have been identified for all of the innovative financing schemes. However, a selection of the main and most relevant barriers will bring clarity to the analysis.

1. Main barriers for Public ESCOs

Specific barriers

- The French banking monopoly (specific to France) obligated the public ESCO to resort to supplier credit which implied a considerable raise in the transaction costs (on average 1000 € for each new contract) caused by the insurance for the 10 years guarantee.
- Banks were and are reluctant to offer loans, and certainly do not consider offering soft loans to certain TPF operators.
- In condominium deep renovation projects, the decision making process is not adapted to the “Pure energy performance contracting (Each successive expense must be decided by the general assembly of co-owners: Feasibility studies, thermal renovation budget, collective loans or TPF.
- Loans for deep renovations in condominiums imply very high transactions costs and a complex and structured management of the credit lines. Only a few specialised financial institutions deal with such type of loans, which enables them to offer loans without preferential terms.
- Lack of a clear project pipeline.
- Accounting and regulatory treatment for new vehicles and their clients.

Barriers that could be addressed by the European Commission

- Lack of a legal definition and regime for Third Party financing.
- Banks were and are reluctant to offer loans, and certainly do not consider offering soft loans.
- Very “early stage” and limited to one Member State. Consequence: High transaction costs.
- Public budgets and in-house capabilities of local authorities are limited when it comes to setting-up new “finance related” instruments.
- Needs changes in the legal frameworks, in order to comply with financial regulations and to access the same fiscal benefits as individual homeowners.

2. Main barriers for EPC promotion

Specific barriers

- Complexity of the EPC concept, specifically in the housing sector.
- Difficulty of applying EPC to deep renovations.
- Split incentives.
- Deep renovation is often carried out with general refurbishment measures that increase the overall investment.
- Long payback times.
- Fluctuating energy prices.
- The Italian EPC market is at the very beginning and Energy Supply Contracting is predominant over Energy Performance Contracting. The classical energy contracts “Servizio Energia” bundle supply of electricity and fuel with energy efficiency retrofits that offer 2 advantages:
Financial: ESCOs profit from the fuel supply.
Administrative: public administrations can launch individual tenders for energy services and supply rather than two separate tenders.
- The major ESCOs, well capitalized and well inserted in the public market, tend to boycott tenders for EPC with guaranteed results because they prefer embedded contracts (refurbishment, operations and maintenance, fuel supply). These contracts are without cost separation and therefore without full transparency.
- On another hand, small and medium ESCOs do not have sufficient capitalization to hold long and complex contracts and banks are reluctant about offering them loans.

Barriers that could be addressed by the European Commission

- Lack of confidence in ESCOs.
- Lack of adaptation of public procurement rules to EPCs.
- Lack of standardised framework and templates.
- Lack of bankability for unbundled projects.
- Lack of reliable energy consumption data.
- Growing need for information dissemination about successful projects.
- Many EPC projects depend on public subsidies or on the political will of the federal or local governments. Therefore it is difficult for ESCOs to plan long term market strategy.
- Banks tend to not accept the cash flows generated by energy savings as main collateral and thus they adopt a very tight precautionary behaviour versus ESCOs against the risk of insolvency. It is generally difficult to engage bank in tender processes regarding complex

programmes that target markets not very developed and involving innovative contracts such as EPCs.

- Moreover, banks prefer financing projects based on their cash flows and their own collateral value than on the company balance sheets (as is usually the case in energy efficiency investments where mortgages on physical assets cannot back energy efficiency investments).
- High transactions costs for the contractual arrangements and the low collateral value of energy-savings works obligate banks to accept only large investments projects (more than 5-10 M€).⁴³
- Loans for deep renovations in condominiums imply very high transactions costs and a complex and structured management of the credit lines. Only a few specialised financial institutions deal with such type of loans.
- The uncertainties perceived regarding the energy efficiency sector as well as the strictness of current Basel rules makes it difficult to create a market uptake through cost reductions and transparency.
- Lack of a market for Performance Bonds issued by independent Insurance Companies in order to insure customers if ESCOs fail to satisfy their performance contracts.
- Deficit of legal and technical skills on EPC for small municipalities which cannot afford the costs of an external consultancy when preparing and carrying out complex tenders. External grant funding (both private and public) can in this case play a crucial role.
- The “obligation to perform” specific to EPCs requires the understanding and the implementation of a monitoring and verification protocol.
- During the energy audits there has been frequently detected a lack of reliable consumption data. A large number of municipalities do not record, or adopt rather arbitrary accounting systems of their operation and maintenance costs.
- Still remains the technical problem to establish the heat losses of the building envelopes (the u-values are often over-estimated).
- The time needed to train the personnel and required to run administrative procedures, is often underestimated. Internal regulations may cause unforeseen delays in the implementation of the programmes.
- Some costs are indirect and may be difficult to estimate. In the Milan programme these costs included:
 - o The initial determination of energy use baselines.
 - o The preparation of the documentation needed for the tenders.
 - o The monitoring and verification of the works carried out by the ESCOs.

⁴³ MICALÉ, Valerio, DEASON, Jeff, HERVE-MIGNUCCI. « Early lessons on introducing energy performance contracts in Italy: Milan’s Energy Efficiency Program ». P. 6. San Giorgio Group Brief. September, 2014.

- The negotiation of changes occurring during the execution of the contracts.
- Unforeseeable expenses such as legal claims during the tender process may also paralyze local administrations and require additional legal advice⁴⁴.
- The benefits of energy savings occur over time and are not very relevant to the electoral concerns of the designated officials. Elections may therefore interfere with the participation in programmes such as this one.
- Other heavy institutional and market barriers remain to be addressed:
 - Legislative instability and complexity of bureaucratic procedures.
 - The "Stability Pact" limits the municipalities capacity to allocate equity funds for measures with long pay-back times (e.g. intervention on the building envelopes coupled within ESCO contracts).
 - Complex incentive systems and with different timing among all actors (EU, Member States, Regions, Local).
 - Opaque relationships with Banks in general.

3. Main barriers for Revolving Funds

Specific barriers

- There are no mechanisms in revolving funds aimed at sustainable progress.
- Revolving funds are relevant to implement specific changes, however they do not contribute to long term market transformation, and unless it lasts for so long that sustained stable demand will have been created.
- Parallel negotiations with many different partners
- Economic situation in the country may change dramatically and therefore change the behaviour of final beneficiaries.

Barriers that could be addressed by the European Commission

- Complex architecture of the fund: the preparation takes a very long time (and incurs considerable costs).
- Final beneficiaries, even with active awareness raising measures, remain reluctant.

⁴⁴ ZABOT, Sergio, DI SANTO, Dario. « Guida ai Contratti di Prestazione Energetica negli Edifici Pubblici ». Ente per le nuove tecnologie, l'energia e l'ambiente and Federazione Italiana per l'uso Razionale dell'Energia.

4. Main barriers for Soft Loans

Specific barriers

- An instrument limited to homeowners that are able to take on additional debt.
- No wide-scale scheme has proven effective on a wide national scale.
- It remains questionable to what extent demand does not remain artificial when it is only created by publicly incentivized loan.

Barriers that could be addressed by the European Commission

- Transaction costs to implement (technically) and manage long-term programmes within financing institutions.
- Increased regulations / provisions for (promotional) banks hinder commitments of credit lines (State-Aid-rules...).
- Specific procedures have to be followed to select the partners (time consuming, strictly supervised, etc.).
- Awareness of house owners who are not convinced that investing in energy saving measures is profitable.

5. Main barriers for Guarantee funds

Specific barriers

- Moral hazard if all risks are removed.
- Extensive and complex handling of risk-sharing facilities.
- In case of replication, it is essential to understand that the ability to attract investment will depend on the financial climate of each country and of the availability of other schemes.
- It is difficult to gauge in advance what the take up might be – even with the best market research, things can change, or small details can affect results. For this reason it is crucial to design an approach that can flex as you learn more, and to build in a system to accept and respond to feedback from homeowners, advisers and installers.

Barriers that could be addressed by the European Commission

- Very time consuming procedure of structuring and negotiating.
- Lack of expertise to implement at regional and local government levels.

- It is difficult to gauge in advance what the take up might be – even with the best market research, things can change, or small details can affect results. For this reason it is crucial to design an approach that can flex as you learn more, and to build in a system to accept and respond to feedback from homeowners, advisers and installers.

6. Main barriers for Green Bonds

Specific barriers

- Issuers need to provide a minimum level of assurance to investors: green quality of the building financed, external verification of the use of proceeds, management of proceeds and environmental impact measurement.
- Current green bonds use a wide range of measurement for environmental performance and provide limited information on what the proceeds will be used for.
- Minimum size of projects.
- Unreliable reporting and governance of the use of proceeds.

Barriers that could be addressed by the European Commission

- Lack of a clear definition and of standards regarding green bonds.

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7. Main barriers for Crowdfunding

Specific barriers

- Potentially high risk levels for investors.
- Equity model is hindered by high costs for alternation of funding contracts of Ltds.

Barriers that could be addressed by the European Commission

- Not enough pilot projects in order to prove its effectiveness.
- Lack of a clear and functional legal framework.
- Low awareness among investors and project developers.

8. Main barriers for Cooperatives

Specific barriers

- Banks are reluctant to invest in this type of projects.
- The incorporation of architecture and landscape with the PPV plants was and still is a major challenge of this project. Historic buildings have specific constraints that need to be addressed. The installations must therefore be carried out in respect of the heritage and architecture, which complicates and lengthens the process.

Barriers that could be addressed by the European Commission

- Hurdles in the connection to the electrical grid proved that having political support is a decisive factor. Therefore changes in the political landscape affect the success of the project.
- Lack of a legal framework defining the offering a clear definition of what cooperatives are and how they can serve the energy transition, specifically, energy efficiency.

Policy Recommendations

Innovative Financing Schemes in Local and Regional Energy Efficiency Policies

Members of FEDARENE - European regions supported with their regional and local energy agencies give the following recommendations to European Commission:

1. Easier access and smarter use of ESI Funds

Even though most Member States can be considered as experienced with the use of EU Structural Funds project developers often face barriers in form of complex set of rules and legal framework imposed by Member States themselves which results in difficulties in spending (absorbing) these funds. **Simplification of administrative procedures and a more open dialogue with project developers on this matter must be considered.** ESI Funds must be used for initiating projects and leveraging involvement from the private sector. In this regard, *off the shelf* financing models offer an effective blend of European, public and private funds that maximizes the impact of energy efficiency policies. **The European Commission should continue promoting the inclusion of European funds in this type of schemes. Highly specific requirements for this type of blending are barriers that should be removed and further guidance on how to design such blends must be provided.**

2. A more energy efficiency – considerate interpretation of public debt rules

Public accounting rules do not take into account the benefits of energy efficiency investments, only their cost. The European methodology on national debts (EUROSTAT) includes energy efficiency projects in the calculations for public debts. The interpretation of public debt rules should not be an additional obstacle for regional and local authorities. **There should be a distinct and specific category for this type of projects, especially when they serve goals enshrined in the Sustainable Energy Action Plans. An exemption from applicable debt caps would alleviate the regional and local authorities' missions.**

3. An improved and multiplied offer of Project Development Assistance

In order to tackle the regulatory and financial requirements in the shortest time frame and in a systematic manner, support and guidance in the form of legal advice and/or technical financial advice is needed for market-based financing schemes. In-house capabilities of local authorities are limited when it comes to setting-up new “finance related” instruments. **The European Commission should continue promoting initiatives such as ELENA and multiply its offer of Project Development Assistance. PDA is crucial in organising market facilitation and aggregation initiatives. The possibility of launching a facility where municipalities receive support in developing feasibility studies for financing without a payback obligation for unrealised projects should also be explored. Such a structure could become an incubator for further innovative solutions.**

4. Energy prices need to be transparent and predictable within a completed and regulated EU internal energy market

Energy price rises are a major political concern and a significant driver for energy efficiency. However, if energy prices are not transparent (or subsidised) this may become also a significant barrier for energy efficiency projects e.g. in street lighting or industry. The European Commission should make all EU countries implement relevant EU legislation in order to **complete the internal energy market and maintain energy prices fully transparent**. The European Commission should also ensure that retail prices of energy converge across Europe. This is still not the case because differences in network distribution systems, uncoordinated national energy and climate policies, taxes, levies and network tariff regulations which are all fragmenting the internal market.

5. Maximizing the use of the European Fund for Strategic Investments

The decision to initiate the European Fund for Strategic Investments in order to be able to capture riskier projects and engage in activities that are of greater strategic interest is a welcome move towards attracting private sector investors. In order to maximize the use of and access to the EFSI, the **European Commission should encourage and support the creation of regional platforms** aiming at aggregating small energy efficiency projects (of the same type) in order to reach the €25 M eligibility cap. These platforms could enable public authorities to present their projects and entice private sector entities to participate as investors. **Reducing the eligibility cap would also be an effective measure in maximising the use of this fund for energy efficiency investments.**

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6. Creation of a unified European legal framework for crowdinvesting

European level policy action in the field of citizen inclusion is needed to enable easier participation of small investors and address the risks associated with this type of project financing. New rules could offer a harmonised and functioning framework for crowdinvesting, tackling issues such as obligation to disclose investment risks or right to refund. Such regulation could catalyse more and larger investments. **European legislative initiative is therefore needed in order to protect this type of investors but also provide easier access to finance for business start-ups. Additionally public authorities should be allowed to use the peer-to-peer lending model that enables citizens to directly invest in projects within their community.**

7. Raised awareness at the decision making level

Strong political support is a fundamental success factor for effective financing of energy efficiency projects. The lack of awareness at the decision making level of the benefits of and opportunities for energy efficiency projects is hindering the success and multiplication of these initiatives. **The European Commission should henceforth develop a more active promotion of these concepts and the need for support during meetings and summits of decision makers on**

different levels. Such fora could become an opportunity to ignite willingness to lead in this domain.

8. Dissemination of successful projects to support replication

The share of successful methods of innovatively financed projects is determinant for replication of tested and proven implementation models leading to improvement of financing mechanisms. The creation of helpdesks assembling experts on these schemes could be an effective way of centralizing access to information and utilizing feedback from successful projects. This measure could better serve the dissemination of proof of concept but also promote standardized products, thus lowering transaction costs. Successful projects that blended European Structural and Investment Funds with innovative schemes and/or contracts should be prioritised. **The European Commission should continue investing in and supporting initiatives that aim at sharing good practices whilst promoting standardized procedures and practices crucial for project success.**

9. Capacity building and standardization in Energy Efficiency innovative financing

Given the complexity of alternative financing schemes and their method of deployment both public and private sector are in need of capacity building and better understanding of risk management. Energy agencies and regional and local public organisations would benefit from improvement of financial and legal skills, managing authorities need guidance on how to blend ESIF with innovative schemes and experts in financial institutions should be trained on financing energy efficiency investments in order to properly advise clients. Standardization of procedures would have a positive effect on implementation of innovative financing schemes especially since many resources have already been developed under various EU initiatives. **The European Commission should renew and multiply its offer of capacity building on innovative finance models in both public and private sector focusing on the effective use of financing opportunities whilst promoting standardization.**

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10. Encouraging adaptation of public procurement procedures

Rules on public procurement present considerable hurdles for the implementation of energy efficiency projects. The high costs of tender processes are barriers to investments. **The European Commission should encourage an adaptation of public procurement procedures to Energy Efficiency policies.**

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