

FINANCING ENERGY EFFICIENCY - LESSONS FROM SUCCESSFUL HORIZON 2020 PROJECTS AND OTHER INITIATIVES ACROSS EUROPE



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As part of the "Smart Finance for Smart Buildings" initiative, the European Commission is organising a series of "Sustainable Energy Investment Forums" to enhance the capacity of and co-operation between public and private stakeholders to develop large-scale investment programmes and financing schemes. The SEI Forums will consist of more than 30 events in up to 15 Member States in 2016-2019; information on past and upcoming events can be found on the [SEI Forums webpage](#).

Most of the projects presented at this event were selected under the Horizon 2020 Energy Efficiency call for proposals managed by the European Commission's Executive Agency for Small and Medium-sized Enterprises (EASME). More information about those funding opportunities are regularly summarized and updated on the [EASME webpage](#) dedicated to energy efficiency finance.

BACKGROUND TO THE EVENT

Accelerating investment in energy efficiency is key to meet the objectives of the Energy Union and support the transition to a clean energy system. This will bring significant benefits for all European citizens and companies in terms of jobs and sustainable growth, lower energy bills, health and security of energy supply. In that context, the European Commission proposes as part of its recent "[Clean Energy for All Europeans](#)" package to review the energy efficiency target to be reached by 2030 to a binding 30% EU level on the basis of a comprehensive costs and benefits assessment.

Successful energy efficiency policy cannot be achieved without unlocking and mobilising private investment, in particular for building renovation. Next to setting the right regulatory framework, the European Commission is therefore running the [Smart Finance for Smart Buildings](#) initiative, which includes practical solutions to further unlock private financing for energy efficiency and renewables in buildings. This initiative builds upon the Investment plan for Europe, including the European Fund for Strategic Investments, and the European Structural and Investment Funds.

This workshop presented a landscape of ongoing initiatives at the local, national and European level, which are demonstrating that energy efficiency can be financed at a large scale through the mobilisation of private financing. Mostly funded under the Horizon 2020 Energy Efficiency programme, these initiatives provide inspiring insights on:

- **Aggregation and assistance for project development:** the event featured successful projects developing an investment pipeline at local and regional levels, which can be adapted and replicated at a large scale across the EU.
- **De-risking energy efficiency investments:** the event presented initiatives in Europe which are making energy efficiency increasingly attractive for the financial sector through policy dialogue, standardisation and benchmarking of investments.
- **More effective use of public funding:** the event presented successful experiences of innovative financing schemes using public funds to leverage private finance for energy efficiency.

Copies of the presentations of the event can be found at:

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

OPENING SESSION

Didier Gambier, Head of Department, EASME, European Commission



One year on from the Paris agreement, many businesses are still not integrating climate change into strategic planning and have their eyes very much on short-term financing. The event will focus on projects that are providing good evidence on energy efficiency investment. Significant support is available through EASME, providing around €100 million of project finance per year and trying to reach a turning point with private financiers, demonstrating that there could be a healthy return on investment in energy efficiency.

Paul Hodson, Head of Unit Energy Efficiency, DG Energy, European Commission



Paul Hodson stressed the untapped potential of energy efficiency despite its good business case. The EU is on track to reaching its 2020 targets, in particular due to regulations on appliances. However, reaching the 2030 targets requires a shift of investments towards building renovation, which are more capital intensive. The mobilisation of private finance is therefore a key success factor. The European Union's Smart Finance for Smart Buildings initiative supports this shift by supporting aggregation, de-risking energy efficiency investments and a more effective use of public funds, to leverage in private financing.

SESSION 1 - AGGREGATION AND ASSISTANCE TO DELIVER SUCCESSFUL INVESTMENT PROGRAMMES

Moderation: Martin Eibl, EASME

Public building renovation through energy performance contracting

Rüdiger Lohse, Klimaschutz- und Energieagentur Baden-Württemberg (Germany)



Energy Performance Contracting (EPC) is an effective instrument to renovate public buildings with private funding by taking away investment cost and performance risks from the public body; in addition, EPC can increase the financial capacity of public bodies without generating additional uncovered liabilities (Lohse et al, Business Model Guide for DER in public buildings, IEA, Paris 2017, July). A good framework is needed at EU and national level and regions are important to enlarge this business model market. Regional agencies could play a role in facilitating links between supply and demand sides and encouraging building owners towards deep levels of retrofit.

Some support is needed to develop markets. A contracting competence centre is being developed and standardised due diligence processes are in preparation in Baden-Württemberg. The region is in receipt of ELENA funding ([INEECO](#) project) and this has supported the training of project facilitators. The region are developing a one-stop-shop, capable of looking at the building envelope, HVAC, lighting and other technologies together. The work of the regional agency has resulted in increased investment per square metre across a portfolio of 18 projects and 12 M€ of EPC investments have been triggered.

Deep renovation of multifamily buildings through EPC

Harijs Švarcs, Latvian Baltic Energy Efficiency Facility (Latvia)



There is a large market potential in Latvia with some 38,000 multifamily apartment buildings, of which only 4% have been renovated. It has been proven on more than 15 soviet era apartment buildings that 55% energy savings can be financed and guaranteed by energy service companies (ESCOs) over 20 years.

However, the key issue in moving forward is around the economics of this type of scheme, as more than €4 billion of investment is required and ESCOs have limited financial capacities.

The Latvian Baltic Energy Efficiency Facility (LABEEF) works by setting EPC contract and quality standards in the market and then buys forward ESCO receivables (repayments of energy bills and savings through energy performance contracts) and finances itself using funding from the European Bank for Reconstruction and Development and other sources, and

is hoping to also get to scale to access the pension fund market. In this way, LABEEF is reducing risk and lowering the cost of schemes.

LABEEF built an IT platform (sharex.lv) which aims to act as a hub that will bring more transparency into the market, reports on performance of such schemes and supports standardization and scale.

The next steps for LABEEF are to acquire an existing 15 building portfolio and attract equity/quasi-equity funds to support LABEEF and to continue to work on the further project pipeline and building the ecosystem of organisations active in this field.

The Danish experience of Energy Efficiency Obligations

Nikolaj Nørregård Rasmussen, Dansk Energi (Denmark)



The Danish Energy Efficiency Obligation scheme is based on a voluntary agreement between the authorities and the energy sector as a whole (electricity, natural gas, district heating and to some extent oil for heating). It is based on an obligation on the DSO and it channels support for energy savings measures through intermediaries to a variety of sectors. The average cost of providing the savings is aligning quite a lot at around 5-7 euro cents per kilowatt hour saved. The scheme is providing significant support for savings in industry (€80 million of an overall scheme size of €200 million in 2015), unlike other energy efficiency obligation schemes across Europe. This was in part due to Danish progress on building energy efficiency in previous decades.

The Danish obligation scheme has increased in size three or four fold since 2006 and a number of delivery models are now in operation, including the use of internal energy consultants working with energy companies and ESCOs and the delivery of private household savings. New players have entered the energy efficiency market and new business models have accounted for notable savings; one ESCO in particular enjoyed 15% savings in 2015. Evaluations show that the Danish EEO provides a socioeconomic net benefit and it is currently set to run until 2020.

SESSION 2 - MAKING ENERGY EFFICIENCY ATTRACTIVE FOR THE FINANCIAL SECTOR

Moderation: Adrien Bullier, EASME

Energy Efficiency Financial Institutions Group (EEFIG) activities to de-risk energy efficiency

Peter Sweatman, Climate Strategy and EEFIG Rapporteur



Around 40% of EEFIG's members represent financial institutions – banks, long-term investors and their trade associations. It has been very important to bring different finance, energy efficiency and policy communities together and get them all speaking the same language.

It is also important to understand and make use of the economic value streams arising from the multiple benefits of energy efficiency projects. These may be green premiums from increased value of the building itself, the contribution of jobs and skills in the green economy and improved health and wellbeing in the workplace and our homes. Cash constrained organisations cannot invest up front to undertake energy efficiency works, even if the project have good returns, so new and emerging business models are enablers of increased action.

The De-risking Energy Efficiency Platform (DEEP, DEEP.eefig.eu) is a database which discloses real financial and technical data of more than 7,800 projects (buildings and industry), and EEFIG's up-coming risk and valuation framework for underwriting energy efficiency investments will be a useful tool to engage banks and other investors in EE. The aim is to develop commonly agreed, tested and accepted standard rules and practices (framework) related to investment and underwriting procedures for debt and equity financing products for energy efficiency investments.

According to the data collected, industrial energy efficiency projects have a median payback of two years while building energy efficiency projects have a three year payback for single measures and an 11 year median payback for deep renovation. Against a market price for energy production of 4.2 Euro cents per kilowatt hour, savings in DEEP are costing on average 1.2 Euro cents per kilowatt hour showing how competitive demand side measure remain.

Many of the challenges that led to the creation of EEFIG are still relevant today: Such as policies to drive demand and reduce uncertainty, simple financial instruments to blend finance and aggregate projects and some roadblocks removed – payback rules, accounting rules and improved capital treatment are still needed.

The Investor Confidence Project Europe

Dave Worthington, Verco and Alex Gilbert, Amber Infrastructure (UK)



One of the main recommendations from the 2015 EEFIG report was to bring greater standardisation to the energy efficiency market. This would help to reduce risk, but lack of good quality data on energy efficiency renovation projects generates risk. Markets are demanding transparent, consistent and trustworthy projects and the ICP Investor Ready Energy Efficiency scheme is actually a certification of the energy efficiency project rather than of the building itself (unlike other building rating systems). It is based on the development of protocols which can be used by investors to ease their assessment of building energy renovations projects. Its

introduction is helping to drive down costs, enabling greater aggregation.

The scheme has been built on existing technical standards and investment milestones and deals with everything from single measures to more complex projects. Protocols will be available in 31 countries. The first certified project in Europe, for a hospital trust, has leveraged €13 million investment and a further pipeline of projects working towards certification is underway.

The scheme is allowing owners to approve more projects, helping developers get recognition for the best practice approach, reducing due diligence costs and should allow scale through aggregation and eventually a secondary market.

Alex Gilbert – Amber Infrastructure



The London Energy Efficiency Fund (LEEF) is a European fund, just focused on London, providing debt and equity for the public sector. The Fund is aiming to be the cheapest source of capital for any borrower. The fund backed 7 major carbon saving projects in London and committed £67 million of capital, mobilized £350m external finance and saved 20,000,000 kWh of energy. Schemes supported so far include building retrofit, decentralized energy and combined heat and power.

LEEF and Amber are interested in increasing standardization and reducing transaction costs and Alex Gilbert confirmed that the protocols developed in the ICP Europe project make it easier for them to invest in energy efficiency.

The Energy Efficient Mortgage Initiative

Luca Bertalot, European Mortgage Federation



Luca Bertalot provided an example of how the banking mortgage sector is mobilising its forces to integrate energy efficiency in their valuation and risk management processes.

The ultimate objective is a pan-European private bank financing mechanism, based on a standardised approach, to encourage energy efficient improvement by households of the EU's housing stock by way of financial incentives linked to the mortgage. Currently, the market doesn't give energy efficiency a price and consumers may worry that retrofit expenditure is a waste of money.

However, banks can provide a methodology at a key moment of change, when people are moving home – there may be the opportunity to borrow extra money and the home will be empty for a while and so it may be more straightforward to retrofit. This challenge, building a banking market union is important beyond the world of energy efficiency. The further development of green covered bonds could represent a revolution in the value chain of the mortgage industry. There are currently €7 trillion in European mortgages, one third of bank balance sheets.

Two main market characteristics are impacted by energy efficiency: retrofitting impacts positively on property value and energy efficiency leads to a reduction of the impact of energy costs to incomes (i.e. reduce borrowers' probability of default). It has been estimated that moving up one energy performance rating category in an house brings the same additional value as adding an additional 15 sq metres to the house. Reference was made to an [analysis of 365,000 house sales in Denmark in 2016](#) which estimated expected price increase when upgrading energy labels of an house.

The European Mortgage Federation is investigating a system whereby banks will change the way they evaluate mortgages in order to incentivise energy efficient investment in existing dwellings, which constitute bulk of EU housing stock. Based on a set of Energy Efficient indicators, the banks would be able to offer "Energy Efficient Mortgage", including either a discount in interest rate for new builds with energy rating A+/A or B (for new buildings) or a discount in interest rate according to improvement in energy rating of property between D and A/A+(for existing properties).

SESSION 3 - MORE EFFECTIVE USE OF PUBLIC FUNDS

Moderation: Timothée Noël, DG Energy

Scene setter: using European Structural and Investment Funds in the form of Financial Instruments

Ricardo Pinheiro, DG for Regional and Urban Policy, European Commission



Cohesion policy has been one of the main sources of public funds in recent years. EUR 454bn have been allocated to the European Structural and Investment Funds (ESIF) for 2014-2020, implemented through five different funds: the European Regional Development Fund (ERDF), the Cohesion Fund (CF), the European Social Fund (ESF), the European Agricultural Fund for Rural Development (EAFRD) and the European Maritime and Fisheries Fund (EMFF). One of the key features of the ESI Funds is the fact that they are delivered through multi-annual programmes at national or at regional level. Allocations to energy efficiency of the ERDF and CF funds have trebled from around €6 billion for 2007-2013 to around €18 billion for 2014-2020.

The ESI funds are delivered partly through grants and partly via financial instruments. The use of Financial Instruments makes sense when the investment will generate some income, revenue or cost saving in order to ensure repayment of investment. Five "off-the-shelf" Financial instruments have also been provided, with set terms and conditions: three for SMEs specifically and two for energy efficiency/renewable energies and urban development (a renovation loan based on a risk sharing loan model and an urban development loan).

The identified energy efficiency market gaps in many Member States is higher than the structural fund allocation alone. Other sources of EU funding can be used to complement Structural and Investment Funds, including e.g. the European Fund For Strategic Investment (EFSI).

Structural Fund policy has been reformed and the European Commission want to reduce the risk perception of financial instruments and help Member States with readiness to receive funds. The legal framework is being amended to allow for ESIF and EFSI combinations. There are many useful sources of information, including [FI-COMPASS](#), which includes case studies on energy efficiency financing.

Use of Cohesion funding for home renovations

Justinas Bučys, Public Investment Development Agency - VIPA (Lithuania)



The idea for the Lithuanian home renovation scheme started with a World Bank project that ran from 1996-2004, followed by a government subsidy scheme that ran between 2006 and 2007, but which then ran out of available funds. In 2007, the decision was made to establish a JESSICA fund, which was then launched in 2009. An ex ante assessment conducted in 2014 identified a €1 billion funding gap until 2023 in the renovation market for multi-family apartment buildings in Lithuania and thus the need to develop the renovation supply chain and skills for these types of homes. Replicated products were launched in early 2015 when the Multi-

Apartment Building Modernization Fund managed by the Public Investment Development Agency was established and a JESSICA II fund was launched in mid 2016.

In the earlier 2007-2013 phase of the scheme, three main categories of challenges were identified, related to the apartment owners, the banks and legal aspects. The JESSICA fund had been set up in 2009, selected intermediaries were appointed, and a grant element was introduced. Municipalities were also instructed to appoint renovation coordinators.

For the latter phase of the programme, the project pipeline is strong and more than 1,500 buildings have been renovated, leading to an average saving of 67% and an increase in value of the building of 15 to 20%. The programme is being directed towards a more complex approach—to the renovation of whole city blocks, including public buildings, heating infrastructure and streetlighting. Currently there is 1:1 leverage of ESIF with commercial banks. This shows that the market may be ready for a guarantee instrument. The risk sharing fund is developed jointly with the European Investment Bank. It is hoped that this will lead to 1:5 leverage and further development of the securitization model will increase the leverage ratio to 1:10 over the next ten years.

Key lessons learned:

- It is essential to have a high quality assessment and analysis of the market,
- It is essential to have a project process owner,
- Policy consistency is also very important,
- Quality assurance measures can help and were developed in this case by the Lithuanian Government,
- Subsidies don't always work (e.g., heating bill compensation working against the decision to renovate).

EIB support to energy efficiency, including the European Fund for Strategic Investments

Isidoro Tapia, European Investment Bank



Over the last five years, European Investment Bank (EIB) lending to the energy sector has totaled roughly €60 billion, of which energy efficiency has accounted for around 20% (€12 billion). The share of funding allocated to energy efficiency is increasing all the time and energy efficiency lending has increased by a factor of three since 2012 to reach a volume of around EUR 3 billion per year. Around 75% of energy efficiency lending volume is dedicated to the building sector. €1.1 trillion of energy efficiency investment will be needed to comply with the proposed 2030 framework of a 40% energy efficiency target.

Typical barriers to delivering energy efficiency works include fragmentation of projects (meaning that there is a role for aggregation), a shortage of capacity within beneficiaries to define and implement projects, subsidized energy tariffs in the residential sector in certain Member States, long pay-back period and split incentives between landlords and tenants.

The EIB has a range of dedicated instruments for energy efficiency; direct investment loans, framework loans through financial intermediaries, investment funds (e.g. European Energy Efficiency Fund) and technical assistance (e.g. ELENA). Support has expanded following the approval of the European Fund for Strategic Investment (EFSI).

There are huge investment needs and a lot of potential in the energy efficiency sector, but also many problems to be faced. One of most important ones is the fragmentation of projects. EIB is trying to be flexible to answer those problems and tools such as [PF4EE](#) and [ELENA](#) are there to help.

CLOSING SESSION

Didier Gambier, Head of Department, EASME

Paul Hodson, Head of Unit Energy Efficiency, DG Energy, European Commission



The intention of the meeting was to give tools to actors in the Member States – in terms of models that can be reproduced, material to use in political discussions about energy efficiency and answers as to where funding can come from.

There is a new policy community that is being built and EASME and the Commission are working to stay in touch with those in the energy efficiency investment space as the agenda moves ahead.

Relevant deadlines for call for proposals are coming up on 7 June 2017 for Project Development Assistance funding under Horizon 2020:

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/ee-22-2016-2017.html>

Future Sustainable Energy Investment Forums regional events will be published at:

<https://ec.europa.eu/energy/en/financing-energy-efficiency/sustainable-energy-investment-forums>