



Ex-ante assessment methodology for financial instruments in the 2014-2020 programming period

Supporting the shift towards
low-carbon economy
(Thematic objective 4)

Volume IV





Supporting the shift towards low-carbon economy

Please note that this version of the methodology reflects the current state of the Regulations as of April 2014.

The author reserves the right to update this document according to the evolution of the relevant regulatory framework.

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Glossary and definitions

ABER	Block exemption Regulation for Agriculture
CEB	Council of Europe Development Bank
CEI	Call for Expression of Interest
CIP	Competitiveness and Innovation Framework Programme
CLLD	Community-Led Local Development
Common Strategic Framework (CSF)	According to Article 10 of the CPR: "The CSF establishes strategic guiding principles to facilitate the programming process and the sectoral and territorial coordination of Union intervention under the ESI Funds and with other relevant Union policies and instruments, in line with the targets and objectives of the Union strategy for smart, sustainable and inclusive growth, taking into account the key territorial challenges of the various types of territories."
CP	Cohesion Policy
CPR	Common Provisions Regulation
<i>de minimis</i>	See below under 'State aid'
DG AGRI	Directorate-General for Agriculture and Rural Development of the EC
DG REGIO	Directorate-General for Regional and Urban Policy of the EC
EAFRD	European Agricultural Fund for Rural Development
EC	European Commission ('the Commission')
EE/RE	Energy Efficiency and Renewable Energy
EEEF	European Energy Efficiency Fund
EIB	European Investment Bank
EIF	European Investment Fund
EMFF	European Maritime and Fisheries Fund
ERDF	European Regional Development Fund
ERR	Economic Rate of Return
ESF	European Social Fund
ESI Funds	European Structural and Investment Funds for the programming period 2014-2020. This includes: European Regional Development Fund (ERDF), Cohesion Fund (CF), European Social Fund (ESF), European Agricultural Fund for Rural Development (EAFRD), and European Maritime and Fisheries Fund (EMFF)
ESIF Policies	Policies making use of the ESI Funds
EU	European Union
Ex-ante assessment	As in Article 37 (2) of the CPR. MS/MA are required to conduct ex-ante assessments before supporting financial instruments, including: rationale/additionality against existing market gaps and demand/supply, potential private sector involvement, target final recipients, products and indicators



Ex-ante evaluation	Ex-ante evaluation required for Programmes in line with Article 55 of the CPR
fi-compass	Platform for advisory services on ESIF financial instruments www.fi-compass.eu
Final recipient	Legal or natural person that receives financial support from a financial instrument as described in Article 2 (12) of the CPR
Financial Instruments (FIs)	As in Article 2 (11) of the CPR, the definition of financial instruments as laid down in the Financial Regulation ¹ shall apply mutatis mutandis to ESI Funds, except where otherwise provided in the CPR. In this context, financial instruments means Union measures of financial support provided on a complementary basis from the budget to address one or more specific policy objectives of the Union. Such instruments may take the form of equity or quasi-equity investments, loans or guarantees, or other risk-sharing instruments, and may, where appropriate, be combined with grants.
FRR	Fair rate of return for entrepreneurial activities in a certain sector in a certain country
Focus Area	EAFRD proposes 6 priorities with 18 focus areas, between 2 and 5 for each priority
Fund of funds	Means a fund set up with the objective of contributing support from a Programme or Programmes to several financial instruments. Where financial instruments are implemented through a fund of funds, the body implementing the fund of funds shall be considered the only beneficiary in the meaning of Article 2 (27) of the CPR.
Funding agreement	Contract governing the terms and conditions for contribution from Programmes to financial instruments. This shall be established between a MA and the body that implements the FoF or the financial intermediary, between a FoF and the financial intermediary or between the MA and the financial instrument, as described in Article 38 (7) of the CPR.
GAFMA	Guidelines for SME Access to Finance Market Assessments: a methodology developed by the EIF to be used to prepare market assessments to identify market failures, suboptimal investment situations and investment needs related to the access to finance of micro-enterprises and SMEs
GBER	General Block Exemption Regulation
GGE	Gross grant equivalent (NPV consideration for State aid purposes)
GHG	Greenhouse gases
HA	Horizontal Assistance as foreseen in the proposed fi-compass
IFI	International Financial Institution
IRR	Internal Rate of Return

¹ Regulation (EU, Euratom) No 966/2012 of the European Parliament and of the Council of 25 October 2012 on the financial rules applicable to the general budget of the Union and repealing Council Regulation (EC, Euratom) No 1605/2002 (OJ L 298, 26.10.2012, p. 1).



JEREMIE	Joint European Resources for Micro to Medium Enterprises
LEADER	Liaison Entre Actions de Développement de l'Économie Rurale/Links between the rural economy and development actions Programme
Leverage effect	According to Article 140 of the Financial Regulation and Article 223 of its Rules of Application "Financial instruments shall aim at achieving a leverage effect of the Union contribution by mobilising a global investment exceeding the size of the Union contribution. The leverage effect of Union funds shall be equal to the amount of finance to eligible final recipients divided by the amount of the Union contribution"
LGD	Loss Given Default (e.g. for a loan)
Managing Authority (MA)	Managing Authority, as defined in the Regulations regarding ESI Funds
MF	Market failure
MFF	Multi-annual Financial Framework of the EU (2007 – 2013, 2014-2020)
MFI	A microfinance institution (MFI) is an organization that provides financial services targeted to a clientele poorer and more vulnerable than traditional bank clients.
MRA	Multi-Region Assistance as foreseen in the proposed fi-compass
Multiplier ratio	An appropriate multiplier ratio shall be established through a prudent ex-ante risk assessment for the specific guarantee product to be offered, in addition to the ex-ante assessment in accordance with Article 37 (2) of the CPR, taking into account the specific market conditions, the investment strategy of the financial instrument, and the principles of economy and efficiency. Such ex-ante risk assessment may be reviewed where it is justified by subsequent market conditions
NPV	Net present value (of a cash flow)
Other Revolving Instruments	Defined in the context of these ToR to refer to funds which are similar to the FEI/FIs, for the eligible sectors, but which are not established under Title IV of the CPR
<i>Pari passu</i>	Situation where a transaction is made under the exact same terms and conditions by public and private investors, with private investor contribution which has economic significance and with simultaneous interventions by both types of investors
PD	Probability of Default (e.g. of a loan)
PPP	Public-private partnership
Programme	Means 'Programme' as described in Article 2 (6) of the CPR
RDP	Rural Development Programme referred to in the EAFRD Regulation (document approved by the Commission comprising a set of measures which may be supported by EAFRD)



RDR	Regulation EU (No) 1305/2013 of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD)
Repayable finance	Defined in the context of these ToR to refer to either all, or a subset of, FEIs, FIs and other revolving instruments
RSFF	Risk Sharing Finance Facility
SGEI	Service of General Economic Interest
SI	Suboptimal investment conditions
SME	Small and medium-sized enterprises as per European Commission Recommendation 2003/361/EC
Specific Fund	A term used in the Summary Reports for 2011 and 2012. In the context of 'JESSICA type' of FEIs refers to an urban development fund (UDF); in the context of 'JEREMIE type' refers to loan, guarantee or equity/venture capital funds investing in enterprises.
State aid	'State aid' means aid falling under Article 107 (1) of the Treaty, which shall be deemed for the purposes of this Regulation, to also include <i>de minimis</i> aid within the meaning of Commission Regulation (EC) No 1407/2013 of 18 December 2013 on the application of Articles 87 and 88 of the Treaty to <i>de minimis</i> aid ² , Commission Regulation (EC) No 1408/2013 of 18 December 2013 on the application of Articles 87 and 88 of the EC Treaty to <i>de minimis</i> aid in the sector of agricultural production ³ and Commission Regulation (EC) No 875/2007 of 24 July 2007 or its successor Regulation on the application of Articles 87 and 88 of the EC Treaty to <i>de minimis</i> aid in the fisheries sector and amending Regulation (EC) No 1860/2004 ⁴ .
Structural Funds (SFs)	EU Structural Funds for the programming period 2007 – 2013 and 2014-2020 (ERDF and ESF)
Summary Report	Report published by DG REGIO in December 2012, on the progress made in financing and implementing financial engineering instruments co-financed by Structural Funds. Situation as at 31 December 2011. The follow-up report on 2012 was published in September 2013.
Technical support	Grants for technical support, which are combined with a financial instrument (FI) in a single operation are provided for the preparation of the prospective investment (please refer to Article 37 (7), (9) of the CPR).
TFEU	Treaty on the Functioning of the European Union

2 OJL 379, 28.12.2006, p. 5.

3 OJL 337, 21.12.2007, p. 35.

4 OJL 193, 25.7.2007, p. 6.



Thematic objectives	Objectives supported by each ESI Fund in accordance with its mission to contribute to the Union strategy for smart, sustainable and inclusive growth (see Article 9 of the CPR)
Union priorities for rural development	For the EU rural development policy (EAFRD) 'Thematic Objectives' are translated into Union priorities for rural development as defined by Article 5 of Regulation EU (No) 1305/2013 (EAFRD). So, the term 'Thematic Objectives' will also cover the Union priorities for rural development.
Urban Regeneration / Development/ Transformation	A range of actions aimed at sustainable renewal, rehabilitation, redevelopment and/or development of city areas, which may include area-based and city-wide initiatives



Introduction

This methodology is intended as a toolbox encompassing good practices and providing practical guidance to Managing Authorities (MAs) in the preparation and the realisation of the ex-ante assessment of the Financial Instrument (FI) envisaged in the Programme(s), as required by Article 37 (2) of the Common Provisions Regulation (CPR). MAs are required to establish evidence of market failures or suboptimal investment situations, the estimated level and scope of public investment needs, and select the type of FI to be supported. The ex-ante assessment process should also allow MAs to ensure that ESI Funds resources allocations to FIs are fully aligned with the objectives of ESI Funds and Programmes and are used in accordance with the principle of sound financial management (meaning in the most economic, efficient and effective way).⁵

The present document constitutes Volume IV of the ex-ante assessment methodology dedicated to sectors related to Thematic Objective 4, notably: “Supporting the shift towards low-carbon economy”. It aims to present some of the specificities of these sectors which need to be taken into account for the ex-ante assessment of the FI, to propose tools adapted to these sectors and to share related good practices.

This sector-specific guidance should be used in parallel with Volume I – Ex-ante assessment methodology, as the common descriptions and tools of the general methodology are not repeated in this volume. At the same time, some sections of this sector-specific methodology might be less extensive in cases where the general methodology of Volume I is sufficiently covering ex-ante assessment requirements for FIs under Thematic Objective 4. The structure of this specific methodology follows the same structure as Volume I, which has been developed around the seven main groups of requirements for ex-ante assessments as set out in Article 37(2) of the CPR, namely:

- Analysis of market failures, suboptimal investment situations and investment needs;
- Assessment of the value added of the FI;
- Estimate of additional public and private resources to be potentially raised by the FI;
- Assessment of lessons learnt from similar instruments and ex-ante assessment carried out in the past;
- Proposed investment strategy;
- Specification of expected results;
- Provisions allowing the ex-ante assessment to be reviewed and updated.

⁵ Regulation of the European Parliament and of the Council laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund covered by the Common Strategic Framework and laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund and repealing Council Regulation (EC) No 1083/2006.



The different elements of the ex-ante assessment can be performed in stages, as foreseen by Article 37(3), and MAs are not obliged to strictly follow the order described in Article 37 (2).

As a result, the ex-ante assessment is to be conceived more as an iterative process rather than as a strictly linear one. This means that MAs will most likely go back and forth in its elaboration and will have to ensure the coherence of the whole assessment before it is finalised.

Finally, please note that this methodological guidance encompasses five Volumes, namely:

- **Volume I** dedicated to the General Methodology covering all Thematic Objectives;
- **Volume II** dedicated to Thematic Objective 1, namely: “Strengthening research, technological development and innovation”;
- **Volume III** dedicated to Thematic Objective 3, notably: “Enhancing the competitiveness of SME including agriculture, micro-credit and fisheries”;
- **Volume IV** dedicated to sectors related to Thematic Objective 4, notably: “Supporting the shift to low-carbon economy”;
- **Volume V** dedicated to “Financial instruments for urban and territorial development”.

1. Financial instruments: Overview

1.1 Rationale for financial instruments for supporting the shift towards a low carbon economy

1.1.1 Objectives and advantages of financial instruments in pursuing EU policy objectives

According to the ERDF Regulation⁶. Thematic objective 4 “Supporting the shift towards a low carbon economy in all sectors” represents the following investment priorities⁷:

- a) promoting the production and distribution of energy derived from renewable sources;
- b) promoting energy efficiency and renewable energy use in enterprises;
- c) supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings, and in the housing sector;
- d) developing and implementing smart distribution systems that operate at low and medium voltage levels;
- e) promoting low-carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures;

⁶ REGULATION (EU) No 1301/2013 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 December 2013 on the European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal and repealing Regulation (EC) No 1080/2006.

⁷ Article 5 of the ERDF regulation 1301/2013.



- f) promoting research and innovation in, and adoption of, low-carbon technologies;
- g) promoting the use of high-efficiency co-generation of heat and power based on useful heat demand.

The rationale for FIs that can support the shift towards a low carbon economy is strongly supported by EU strategies, in addition to EU-wide sub-optimal investment situations and market failures within the sectors of the low carbon economy.

EU Structural and Investment policy is central to achieving the objectives of the Europe 2020 strategy. EU2020 has five main targets, including a target for climate change and energy sustainability⁸ with the specific objectives of:

- A 20% reduction in greenhouse gas emissions compared to a baseline of 1990;
- 20% of energy to be supplied by renewables;
- A 20% increase in energy efficiency.

The EU legislative framework aimed at supporting these targets include:

- The Energy Efficiency Directive⁹;
- The Energy Performance of Buildings Directive¹⁰;
- Ecodesign and Energy labelling Directives and relevant Regulations¹¹;
- The Renewable Energy Directive¹².

National priorities in terms of meeting the EU2020 objectives on energy efficiency are detailed in MS's National Energy Efficiency Action Plans (NEEAPs). National priorities for meeting RE objectives are detailed in MS's National Renewable Energy Action Plans (NREAPs)). In addition, any relevant country specific recommendation (as part of the European Semester exercise), as well as the building stock renovation roadmap and the heating and cooling plans stemming from the EE directive need to be taken into account.

FIs that support a low carbon economy can help to support MAs with implementation of EU2020 and national-level targets. The purpose of FIs is to enhance the financial sustainability of ESI Funds by increasing their remit from one-off grant payments to repayable forms of support such as loans, equity or guarantees. Projects that support the shift towards a low carbon economy, in

8 See: http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/targets/index_en.htm.

9 See: http://ec.europa.eu/energy/efficiency/eed/eed_en.htm.

10 See: <http://www.epbd-ca.eu/>.

11 See: <http://ec.europa.eu/enterprise/policies/european-standards/harmonised-standards/ecodesign/>.

12 See: http://ec.europa.eu/energy/renewables/targets_en.htm.



line with the investment priorities detailed earlier, especially investments in EE and RE (including RE production), are well suited for repayable FIs. On the one hand, EE and RE investments tend to generate both financial and wider economic returns through cost savings, more productive assets, energy security, job creation, and quality of life benefits. On the other hand their capital needs are generally higher than the amount private sources are willing to provide are therefore subject to both sub-optimal investment situations and market and regulatory failures. However, it must be noted that grant instruments will still often be necessary for funding parts of EE and RE projects, particularly those which have very low or negative IRRs, or if needed for social reasons or deep renovation purposes.

As already stated in the General Methodology, FIs enable the recycling of funding which therefore means that funds can be reinvested, rather than spent once as in the case of grant instruments. They can also help to leverage private sector co-investment where available.

A recent EC report (Renewable Energy Progress Report, 2013) on the renewables sector states that “if the growth rates achieved in 2009/2010 were maintained to 2020, eleven Member States would still fail to reach their target.”¹³ It also specifically states that this is partially caused by the financial crisis since costs of capital have increased and reduced the feasibility of renewable energy projects.

The EU is making good progress towards delivering on the 20% GHG emissions reduction commitment.¹⁴ However, although the EU target may be achieved, progress is not homogenous across the EU-27. The European Semester 2013 reports that the GHG emissions target will not be met by at least 13 Member States with their existing measures.¹⁵

It is clear that further investment is needed in both RE and EE to meet EU2020 targets, and also to put in place the mechanisms that will enable MSs longer-term targets. In addition, many individual MSs have set higher targets for themselves than those stemming from the EU legislation or initiatives and they will require ambitious investment strategies to achieve these.

Due to considerable market failures across the low carbon economy there is generally an insufficient provision of capital in the sector to implement the programmes and projects required to meet EU and national targets.

Market failures include general failures relating to market imperfections such as high transaction costs (especially for energy efficiency projects), imperfect information (perceived lower returns on investments and higher risks than reality), split incentives (tenant-landlord problem), lack of

13 European Commission (2013B) p.7.

14 See: http://ec.europa.eu/clima/policies/g-gas/index_en.htm.

15 See: http://ec.europa.eu/clima/policies/g-gas/progress/index_en.htm.



provision of skills due to low demand and to environmental and climate protection known as “the tragedy of the commons,”¹⁶. In addition, specific failures are also observed relating to a lack of finance due to credit constraints throughout financial markets and/or lack of adapted financial products, lack of information/knowledge, etc. Furthermore, regulatory failures also exist in some countries (e.g. property taxes that penalize distributed renewables, or poor condominium legislation).

FIs are important because they can fill the market gap that is not being addressed and also attract additional private sector finance by providing first-risk and/or subsidised capital (subject to national reference rates). This is in line with the EC/EIB “Stocktaking Study” which was completed in 2013 and found that MAs’ main motivation for establishing FIs are both their revolving nature, and their ability to attract private finance¹⁷.

1.1.2 Use of financial instruments that support the shift towards a low carbon economy in the past programme period

Under the General Regulation for the programming period 2007-2013, FIs were used to invest in:

- Enterprises, primarily SMEs (Article 44a) - JEREMIE;
- Urban Development (Article 44b) - JESSICA;
- Energy efficiency and renewable energy (Article 44c) - Energy Efficiency Funds.

Most FIs that support the shift towards a low-carbon economy were formed under Article 44b or Article 44c.

Article 44b FIs relevant to the low-carbon sector include:

- Low carbon urban infrastructure including transport, waste to energy, water/waste water, distributed energy;
- EE and RE¹⁸ in existing buildings, including housing.

In the 2007-2013 Programming Period these have tended to be EE/RE funds that are focused on retrofitting existing buildings and other fixed assets to reduce energy consumption, and renewable energy upgrades in existing buildings. Article 44b FIs can only invest in projects that are part of

¹⁶ *The tragedy of the commons refers to where shared resources are depleted through individuals acting in their rational self-interest, despite the fact that depleting a shared resource is contrary to the group's best interests. This rationale is often used to explain issues such as climate change, global warming and air and water pollution. Associated under-investment in climate change adaptation or mitigation, and environmental protection can be partially explained by this rationale.*

¹⁷ *European Commission, EIB (2013) Financial Instruments: A Stock-Taking Exercise in Preparation for the 2014-2020 Programming Period.*

¹⁸ *The guidance prepared by the Commission on best practice and experience gained in RE support scheme reform can be taken into consideration http://ec.europa.eu/energy/gas_electricity/internal_market_en.htm.*



an Integrated Plan for Sustainable Urban Development (IPSUD) that is to be defined by the MS/MA. For the 2014-2020 Programming Period all projects eligible for ERDF funding under the relevant thematic objective will be eligible, without the condition that they need to be included in an IPSUD.

Article 44b FIs that have included some element of support for low carbon projects include:

- The Exoikonomo kat'οikon Programme (fund for improving energy performance of residential buildings) in Greece^{19 20};
- The London Energy Efficiency Fund²¹;
- The London Waste Fund²²;
- The JESSICA Holding Fund in Lithuania²³;
- Housing Renovation Fund in Bulgaria.²⁴

In general, the EU Stocktaking Study states that it has taken up to 2 years to set-up FIs focused on EE or RE and most have required private (in addition to public) cofinancing.

Article 44c FIs have been designed specifically to invest in EE/RE measures in existing buildings including housing. 44c FIs were introduced in 2010 after the adoption of Regulation (EU) No 539/2010. A non-exhaustive list of FIs created under article 44 is presented in Table 1 below.

Table 1: Article 44 FIs to 31st December 2012²⁵

Member State	Fund name	Fund Set Up	OP contribution (M €)
Bulgaria	Housing Renovation Fund	2012	6,4
Denmark	Accelerace Invest	2009	3,0
Denmark	Fonden CAT Invest Zealand	2010	5,4
Estonia	Renovation loan for apartment buildings	2008	49,7
Greece	First instrument of Energy Saving in existing housing	2011	17,8
Italy	Fonda Energia, Campobasso	2011	13,4

19 See: <http://www.jessicafund.gr/index.php/jessica-in-greece/urban-development-funds/?lang=en>.

20 Although formally established under Article 44b, some FEIs have a strong focus on increasing energy efficiency in the built environment. These were often set up before Article 44c was introduced into the regulations. The Fund for Energy Efficiency (Exoikonomo kat'οikon) in Greece; the London Energy Efficiency Fund (LEEF) in the United Kingdom; the JESSICA Holding Fund in Lithuania; and the 'Housing Renovation Fund' (HRV) in Bulgaria are examples of such FEIs.

21 See: <http://www.leef.co.uk/>.

22 See: <http://www.foresightgroup.eu/page/569/Foresight-Environmental-Fund.htm>.

23 See: <http://www.eib.org/products/jessica/eoi/jessica-holding-fund-lithuania.htm>.

24 See: <http://www.bgregio.eu/en/jessica/horizontal-studies-eu-jessica.aspx>.

25 DG Regio (2013).



Member State	Fund name	Fund Set Up	OP contribution (M €)
Italy	Fondo di rotazione per investimenti finalizzati al contenimento dei consumi energetici	2012	15,0
Italy	Fondo di Sostegno e Garanzia FSE	2009	15,0
Italy	Nuovo Fondo di Ingegneria finanziaria a favore delle PMI a valere sui POR FESR Lazio	2011	50,0
United Kingdom	Art Aston Reinvestment Trust	2009	3,3
United Kingdom	Black Country Reinvestment Trust	2009	8,1
United Kingdom	Coventry and Warwickshire Reinvestment Trust	2009	1,5
United Kingdom	Marches Rural Reinvestment Trust	2009	2,5
United Kingdom	The Princes Trust	2009	4,0
United Kingdom	Enterprise Loans East	2009	1,5

Cohesion policy support for FIs in the area of EE/RE reached a total amount of €444.10 million of OP contributions at the end of 2012²⁶.

This section provides some examples of FIs and other national or regional level public-private funds in the EE/RE sector and others supporting the low carbon economy that MAs could refer to for best practice and lessons learned.

Experience to date suggests that the most common instruments, excepting grants, for EE and RE in existing buildings are soft loans. These have been used under the JESSICA programme in London, Estonia and Lithuania. Alternatively, in low carbon urban infrastructure, such as the London Waste Fund, an equity model has been used.

Table 2: Examples of FIs in the EE/RE sector (* = FIs financed by Structural Funds)

Sector	FI	MS/MA	Type of Financial Mechanism
Energy Efficiency in SMEs	KfW Special Fund Energy Efficiency in SMEs (non-SF)	Germany	Grants and loans
Energy Efficiency in Housing	KfW Housing Modernisation Programme (non-SF)	Germany	Soft Loans
	KredEx Renovation Loan*	Estonia	Soft Loans
	JESSICA Holding Fund*	Lithuania	Soft Loans
	Housing renovation Fund*	Bulgaria	Soft Loans
	Fund for Energy Efficiency*	Greece	Soft Loans



Sector	FI	MS/MA	Type of Financial Mechanism
Energy Efficiency Renewable Energy and in Buildings	London Energy Efficiency Fund*	London	Subordinated debt Mezzanine debt
Low carbon urban infrastructure	London Waste Fund (Fore- sight Environmental Fund)*	London	Private Equity

Useful information in terms of lessons learned can be found in the following documents:

- CEPS (2012) The Use of Innovative Financial Instruments for financing EU Policies and Objectives: Implications for EU and National budgets;
- College of Europe, Department of European Economic Studies (2013) Financial Engineering Instruments and their Assessment under EU State aid Rules;
- DG REGIO (2013) Summary of Data on the progress made in financing and implementing financial engineering instruments co-financed by Structural Funds, situation as at 31 December 2012;
- EIB, European Commission (2012) Energy Focused UDFs;
- EIB, European Commission (2012) Housing in JESSICA Operations;
- EIB, European Commission (2010) JESSICA Instruments for Energy Efficiency in Greece;
- European Commission, Institute for Energy (2010) Financing Energy Efficiency: Forging the Link Between Financing and Project Implementation;
- Wales European Funding Office (2013) Wales ex-ante evaluation of European Programmes 2014-2020 – Financial Instruments;
- JRC European Commission, Institute for Energy (2010) Energy Service Companies Market in Europe, Status Report 2010.
- Energy Efficiency Market Report (2013) IEA

However, please note that this is a non- exhaustive list and other useful references may be available to MAs.

1.2 What are the options available to Managing Authorities?

Please refer to the General Methodology for guidance on the options available to Managing Authorities. Some examples are proposed hereafter. For more detailed guidance on the implementation options available to MAs for FIs supporting the low carbon economy, please refer to Section 7.



Box 1: FI in low carbon urban infrastructure

Example: FI in low carbon urban infrastructure, the London Waste Fund/Foresight Environmental Fund²⁷

The London Waste Fund (UDF) now known as Foresight Environmental Fund²⁸ was launched in March 2011 under the auspices of the London Green Fund HF (co-financed by the ERDF and managed by EIB) and is managed by Foresight. It is financed through a contribution of £35m from the ERDF-funded HF and cofinancing, predominantly from UK Pension Funds. It has a maximum fund size of £100m.

The Foresight Environmental Fund is a private equity fund that targets investment in unquoted companies involved in recycling and waste-to-energy projects. Its investment portfolio is concentrated on waste-to-energy and recycling plants in Greater London. The purpose is to divert municipal and commercial waste from landfill to more sustainable waste facilities - generating a reduction in carbon emissions and creating new jobs in London.

These projects are considered to be stable assets and hence have been able to attract private sector finance. However, they rely on a consistent and reliable supply chain of waste products as well as sufficient demand-load for renewable energy and recycled products generated, in addition to a supportive policy and regulatory environment.

Resources from the ERDF through the London Green Fund were central in catalysing support for the UDF. The LGF contribution was considered a cornerstone which allowed them to secure the first close on the fund prior to investments by private equity financiers.

The UK and London's waste policy provides a particularly supportive environment for the fund. There is a UK-wide landfill tax which in April 2011 stood at £56 per tonne, set to increase to £80 per tonne by 2013. Implications for London include an annual bill for municipal waste of £265-300 million. The landfill tax has made the cost of generating energy from waste more comparable to landfill and, in some places, more commercially attractive, and therefore directly facilitates demand for the fund.

27 See: <http://www.foresightgroup.eu/page/569/Foresight-Environmental-Fund.htm>.

28 See: <http://www.foresightgroup.eu/page/569/Foresight-Environmental-Fund.htm>.



London's waste policy extends over business and municipal waste. It includes the following objectives for business waste: achieving 70 per cent reuse, recycling and composting of commercial and industrial waste by 2020, maintaining these levels to 2031, and achieving 95 per cent reuse, recycling and composting of construction, demolition and excavation waste by 2020, maintaining these levels to 2031²⁹.

It includes the following objectives for municipal waste: achieving zero municipal waste direct to landfill by 2025, reducing the amount of household waste by 20% per household, increasing London's capacity to reuse or repair municipal waste from approximately 6,000 tonnes per year in 2008 to 20,000 tonnes a year in 2015, to recycle or compost at least 60 per cent of municipal waste by 2031, to generate as much energy as practicable from London's organic and non-recycled waste in a way that is no more polluting in carbon terms than the energy source it is replacing. This is estimated to be possible for about 40 per cent of London's municipal waste after recycling or composting targets are achieved by 2031.³⁰

Box 2: FI in EE/RE in existing buildings

Example: FI in EE/RE in existing buildings, including housing, the KredEx Renovation Loan Fund³¹ in Estonia

KredEx is the designated legal entity that acts as a Holding Fund for Estonia's programme for energy efficiency in their housing stock (Loans for Reconstruction for Apartment Building Programme). It offers low-cost loans with longer repayment periods than private sector bank loans for the retrofit of apartment buildings constructed prior to 1993. A loan can be applied for through a project sponsor - either an apartment association, building association or community association with at least 3 apartments.

Main terms include:

- Achievement of energy savings of at least 20% in apartment buildings of 2000 m²;
- Achievement of energy savings of at least 30% in apartment buildings of 3000 m²;
- Loan period of up to 20 years;mirj
- Self-financing of at least 15% (can be covered by grant);
- Minimum loan of €6,400 per apartment building; and
- Average fixed interest rate of 4.01% for the first 10 years.

²⁹ Mayor of London (2011A) p.12.

³⁰ Mayor of London (2011B) p.14.

³¹ See: <http://www.kredex.ee/apartment-association/laen-ja-kaendus-2/renoveerimislaen/>.



The implementation of the renovation loan fund is undertaken through two UDFs - both retail banks in Estonia - SEB and Swedbank. The banks took on the lenders' risk. The final fund of €49 million was made up of €17 million of ERDF equity, a €28,8 million loan from the Council of Europe Bank (CEB) and a further €3.2 million investment from KredEx.³² To date 100% of the Holding Fund has been allocated over 18,281 apartments. Energy savings of 36% are expected.

32 See: http://managenergy.net/sm_kred_ex_estonia.html.

2. Ex-ante assessment: Purpose and preliminary considerations

2.1 Scope and value of the ex-ante assessment for financial instruments

Please refer to the General Methodology for guidance on the scope of the ex-ante assessment for FI.

2.2 Preliminary considerations

Please refer to the General Methodology for guidance on the preliminary considerations for ex-ante assessment for FI.

3. Analysis of market failures, sub-optimal investment situations and investment needs

As presented in the general methodology³³, the presence of market failures, suboptimal investment situations and unmet investment needs are essential components for justifying a public intervention. Following that, the assessment of the extent to which additional investment is needed to reduce an identified financing gap is meant to be the trigger for the implementation of FIs.

The purpose of this section is to guide MAs on how they can properly identify sub-optimal investment situations, market failures and investment needs, so that FIs can be structured and implemented appropriately.

3.1 Identifying existing market problems

The following provides some detail on the types of market failures that typically affect the low carbon economy within the following categories:

- Structural macro-economic failures;
- Demand-side market failures;
- Supply-side market failures.

3.1.1 Structural economic failures

Negative externalities

A negative externality is a cost that is suffered by a third party as a result of an economic transaction. It is known as an externality because the actors that take part in the economic transaction do not internalise all of the costs.

Negative externalities are one of the primary market failures relating to carbon emissions. For example, a factory which creates carbon emissions as a result of production does not bear the full costs of their creation. In addition, people who consume goods and expel waste, do not bear the full costs of the carbon emissions related to their waste.

33 See: *Ex-ante assessment methodology for Financial Instruments in the 2014 - 2020 programming period, Volume I.*



The presence of a negative externality means that private actors are rarely incentivised to invest to reduce the externality since they do not bear the full cost. This means there is a market failure and a case for public support.

“Tragedy of the commons” or a public goods non-excludability failure

The “tragedy of the commons” is the depletion of a shared resource by actors who are acting rationally on an individual basis, despite understanding that the long-term interest of the group will not be met. It is central to understanding the lack of global and individual action to tackle climate change³⁴. This is a more general rationale to understanding why projects and programmes in the low carbon sector can find it difficult to obtain stakeholder support, especially when they are not commercially viable.

3.1.2 Demand-side failures

Split-incentive and principal agent problems

Split-incentives and principal-agent problems are mainly relevant in relation to investments in EE and RE in existing buildings, including housing. They relate to let or rented buildings whereby there is little incentive for the owner to invest in EE because it is the tenant that benefits from the energy cost reductions. This is not a market failure in owner-occupied buildings. However, the split-incentives are also observed in the service sector (especially when renting buildings) and even the industrial sector (when the development of the industrial sites is carried out by contractors who try to minimize the costs).

EE in buildings is one of the primary investment areas for MAs who are looking to meet the objectives in their NEEAPs since they represent, on average, up to 40 per cent of final energy consumption. Social housing alone represents 12 per cent of the European housing stock and 20 per cent of CO₂ emissions³⁵.

Asymmetric and imperfect information

Imperfect information is problematic when a potential project sponsor does not understand the energy saving or generation potential of their asset. This may mean that there is a market failure because buildings and other assets can have latent energy saving or generation potential that is not accessed due to a lack of information. In addition, even if project sponsors do understand the EE potential of their building, they often are faced with competing priorities.

34 Note: United Nation is one of the global player on climate change mitigation. See Framework Convention on Climate Change (UNFCCC) <http://unfccc.int>.

35 See: http://urbact.eu/fileadmin/Projects/CASH/news_media/270213_sg/25_CASH_Miniguide_6_EE_Systemic_PM_EN.pdf.



For example, a hospital facilities manager may not be able to get support for an EE project from the Financial Director, when there are many priorities over investments in improvement to care that will come first.

One of the main risks involved in EE in buildings projects is known as the “rebound effect,” an economic term that refers to the increased consumption that results from actions that increase efficiency and reduce consumer costs. The rebound effect can be direct, when occupants heat their homes or cool their buildings for longer because they cost less to heat or cool, or indirect whereby occupants spend the money gained from energy savings on more energy-intensive uses such as car ownership or air travel. To some extent, the rebound effect may be limited by legislation introduced by the new Energy Efficiency Directive which requires individual billing and metering by 31 December 2016 in all multi-apartment buildings where they have a common heating/cooling source. In addition, due to the lack of clarity over energy savings, technical complexity, and generally small-scale of projects, transaction costs can be high for these types of projects.

Small size of projects and high transaction costs

One of the main issues for funds looking at investments in EE and RE is the often small size of projects, and the relatively high transaction costs involved in getting them to market. Overcoming this failure relies either on standardised contracting or being able to pool projects with different risk profiles and sizes to create an attractive financial prospect. The latter approach can require significant technical assistance funding. In addition, high transaction costs can be caused by the lengthy administrative procedures for approval of renewables or co-generation projects.

Scarcity of investment ready projects

A culmination of imperfect information and principal-agent problems means that there can be a scarcity of investment ready projects. This means that even if there is access to finance, the demand side can remain latent rather than explicit. One of the main challenges with FIs supporting the low carbon economy is securing a pipeline of shovel-ready projects, and the marketing and project development costs associated with this.

3.1.3 Supply-side failures

A lack of access to appropriate finance/ high project risks

A lack of access to finance can affect all investments in the low carbon economy. This tends to come from capital market failures whereby capital markets are not accustomed to making these types of investment and accurately pricing risk. On the whole, EE investments in buildings are considered to be relatively medium risk, especially when compared to immature RE technologies or low carbon infrastructure projects. This means that projects in the latter categories often require high levels of subsidised or no-cost finance to realise.



In addition, it is also the case that many investments in the low carbon economy require a mix of public (low-cost) and private sector funding to be feasible, as projects themselves may have high initial costs and long pay-back periods. In this case there is also a market failure if there is insufficient appropriately-priced capital for projects.

A lack of capacity or experience in the supply chain

One of the real market failures facing EE implementation and RE deployment across the EU is a lack of capacity or experience in the supply chain.

Energy Service Companies (ESCOs) are very important in the market for, and implementation of, EE projects across the EU, in particular for buildings. Energy Performance Contracts (EPCs) help to overcome the initial financial constraints of EE investments, through a contractual arrangement between the project promoter and the ESCO to install EE measures, where costs (including financing costs) are paid in accordance to a contractually agreed level of energy consumption savings. ESCOs offer a range of services to their clients, from EPC contracts to selling energy and financing the sale of equipment. To date a shared savings concept has mostly been used across the EU, or energy supply contracts, with guaranteed savings used rarely.³⁶

For the EPC market to thrive, ESCOs need a strong legal framework including public procurement framework, some fiscal incentives, technical and practical experience of using EPC, the capacity to arrange and manage financing, and sufficiently developed project pipelines.

These conditions are not found uniformly across Europe. Although countries such as Germany, France, UK and Spain, have strong experience and legal frameworks for EPC, others have a lot less experience and, as a result, their EE markets are significantly less developed.

The EC Energy Service Companies Market in Europe Status Report 2010 states that “the energy service market in the EU and neighbouring countries is far from utilising its full potential, even in countries with a particularly developed ESCO sector.”³⁷

Other issues are found further down the supply chain in terms of the contractors that undertake the retrofit works - either EE or RE installation. Many countries have a lack of skilled workers that know how to undertake the works required to retrofit buildings and this can be a real market failure in implementation.

³⁶ The shared savings model is where, under an Energy Performance Contract, the ESCO shares the energy savings with the customer. The guaranteed savings model is where the ESCO assumes the performance risk, but not the credit risk.

³⁷ JRC Scientific and Technical Reports, European Commission (2010) p. 4.



The following table provides some guidance on where market failures may be found in particular project typologies. It should be noted that this will not be uniform across the EU28, and MAs should investigate their own market conditions using this as framework as suggested rather than prescriptive guidance.

Table 3: Type of market failure against project typologies

Type of Market Failure	Energy Efficiency	Renewable Energy	Low carbon urban infrastructure
Negative externalities			
Public goods			
Principal-agent problems			
Imperfect information			
Small size of projects and high transaction costs			
Scarcity of investment ready projects			
A lack of access to appropriate finance/high risks			
A lack of capacity or experience in the supply chain			

KEY			
	High likelihood	Medium likelihood	Low likelihood

3.1.4 Suboptimal investment situations

Key questions to address when identifying suboptimal investment situations

1. Which priorities have the MS highlighted in their NEEAP and NREAP?
2. Which project typologies have been identified to support these policy priorities?
3. What public and private funding (including policy incentives) is available for the project typologies and how successful have they been in implementation?
4. Which of these project typologies are currently under-invested in the area covered by the Programme?
5. Do the under-invested typologies tend to have positive ERRs but lack required funding/finance?

A sub-optimal investment situation is where there is a portfolio of economically viable projects but for one reason, or a combination of reasons, there are barriers to making them financially viable.



There are two main examples of where an FI can help in a suboptimal investment situation:

- A project has a positive IRR but it is not attractive to private finance because of a variety of factors including – perception of high risk, unfamiliar asset class, long maturity or a lower IRR than usually attractive. The grant element in an FI and the information an FI can provide, can make these investments more attractive;
- A project has a high ERR but a negative or low IRR either because most of the benefits are social and/or there are high transaction costs. The grant element in the FI can improve profitability and make the IRR positive, thereby attracting private finance. The grant effectively subsidises the project's positive externalities.

It must be noted that a sub-optimal investment situation is only present where a project has a positive ERR but a lack of finance to implement the project. It is important that an FI only funds projects with a high ERR that do not attract finance due to market failures. This is to ensure the additionality of the FI.

Box 3: Calculating a project ERR

Example: Calculating a project ERR for an Energy Efficiency in Public Buildings project

MAs and their representatives should always consult national-level guidance methodologies for the calculation of ERRs.

A general methodology for calculating a project ERR for an Energy Efficiency in Public Buildings project would be as follows:

1. Establish the expected lifetime of the investment based on the useful economic life of the project
2. Estimate the costs of the project including all capital and operating costs over the expected life of the investment
3. Estimate the monetisable benefits of the project including:
 - a) Energy savings (measured using €/kWh)
 - b) GHG reduction (measured using national-level CO₂e price)
 - c) Wider economic benefits such as job creation, improvements in organisational productivity, health benefits

N.B. Wider economic benefits are not estimated by all countries in ERR calculations.
4. Establish an appropriate discount rate using national-level guidance and discount all costs and benefits of the project to year 0.



Some of the common causes of a suboptimal investment situation in EE projects in buildings include the following:

- Unclear returns and high perceived risks: Projects supporting the low carbon economy can often have unclear returns for financiers and project sponsors. EE projects, in particular, do not have conventional cash flows because they are generated through energy savings rather than income, and, in addition, they are not a traditional asset class. Both these factors can make financiers unwilling to provide finance, unless a project developer is sufficiently large and has the willingness to take on recourse debt to fund their EE projects. As noted later in this Section, this is often not the case due to competing priorities within organisations;
- Long payback periods: EE projects in buildings can often have long payback periods (over ten years), especially those projects that concentrate on whole building retrofit and therefore have the highest ERRs. For projects that involve upgrading building fabric as well as windows and HVAC controls, paybacks are often long and although IRRs may be positive over the long-term, private investors are unlikely to be attracted due to lower than average IRRs.

The text box below contains an example of how an MA (Wales) identified sub-optimal investment situations in its ex-ante assessment.

Box 4: Wales Ex-ante Evaluation of European Programmes 2014-2020 Financial Instruments

Example

The ex-ante evaluation for Wales looked at four main areas in the low carbon economy:

- Energy Efficiency and Renewable Energy focused on residential communities and SMEs;
- R&D and Infrastructure investment to support the realisation of economic opportunities associated with the marine energy sector;
- Exploitation of renewable energy and low carbon infrastructure in major economic development schemes;
- Community renewable schemes.

Identification of sub-optimal investment situations

EE and RE in residential communities

The national funding available for EE and RE in social and private housing was assessed. There were two main programmes identified:

- Arbed which is a Welsh grant programme for EE in social and private housing;
- The Green Deal which is a UK-wide financing programme for EE and RE in social and private housing.



With reference to Arbed, the potential for incorporating a loan mechanism was identified especially for households which are not classified as “deprived” and therefore can afford a level of financing costs.

With reference to the Green Deal, it was noted that any new scheme should not duplicate the finance offering of the Green Deal and therefore there was a limited case to be made for replicating this financial support scheme in Wales for individual homes or businesses.

It was noted that the Green Deal although theoretically providing support for large social housing owners or private landlords with multiple properties, faced market failures in these types of properties and therefore this could be explored further for ERDF assistance. In addition, it was identified that an ERDF scheme should include EE in public and voluntary sector buildings.

Marine Energy Related R&D and infrastructure

Marine Energy has been identified as a priority for the Welsh Government. However, the sector is still immature and there is a need mainly for grant funding rather than the type of funding that could be offered by an FI. One area was identified which could benefit from equity finance - this was for grid upgrades to enable onshore cabling.

Renewable Energy and Low Carbon Infrastructure

There is currently a limited project pipeline identified for RE investments in Wales. It was identified that a further scoping exercise would need to be undertaken to identify any potential sites.

District energy schemes have been explored in some parts of Wales but conclusions were that there was a lack of demand volume to make them commercially viable. Any gap funding would likely need to be grant funding.

There was one scheme identified - a two turbine wind scheme at a business park - which was funded through project finance, however there was a lack of further demand identified for this type of scheme.

Community Renewable Schemes

The ex-ante assessment highlighted the fact that access to finance was not a particularly important issue for these schemes since there were a number of small scale renewable energy loan schemes available. Finance Wales consultees suggested that there was already a relatively crowded market for financing social enterprise projects.



It is important that any FI support should complement and not crowd-out national support schemes for EE or RE deployment. Support should therefore only focus on intervention areas for which current initiatives are insufficient.

For example, in a MS with strong policy incentives for EE and RE (such as high level of feed-in tariffs) FIs should only invest where technologies are immature, or they are perceived to have higher levels of risk.

3.2 Establishing the evidence of market failure and suboptimal investment situations

Tackling market failures is central to the objectives of ESI Funds and it is essential that MAs identify at least one market failure for each project typology selected as part of an FI's investment strategy. As already discussed in the General Methodology, when investigating market failures, it is important, that both demand-side and supply-side failures are identified and analysed.

3.2.1 Analysis of the gap between supply and demand for supporting the shift towards low-carbon economy

Key questions to address when identifying market failures

1. What are the demand-side barriers to implementation of identified EE and RE project typologies within the MA?
2. What are the supply-side barriers to implementation of identified EE and RE project typologies within the MA?
3. What are the structural macro-economic barriers to implementation of identified EE and RE project typologies within the MA?
4. Why are specific projects that support the low carbon economy not being implemented?

A guidance methodology for the ex-ante assessment of market failures in the low carbon economy is detailed below.



Table 4: Guidance methodology for the ex-ante assessment of market failures

Market Failure	Suggested approach for MA to assess market failure
Negative externalities	MAs can consider that this market failure will be present in the majority of situations when looking at the low carbon economy.
Public goods	MAs can consider that this market failure will be present in the majority of situations when looking at the low carbon economy.
Principal-agent problems	<p>As detailed, this market failure mainly affects EE in buildings where the project developer is not an owner-occupier.</p> <p>If the MA has identified project typologies that include rented buildings (including public estate, social housing, private housing) then this market failure is likely to exist.</p> <p>For this market failure an MA should identify the proportion of social and private-rented property within its geographical scope and compare to national and regional benchmarks.</p>
Imperfect information	MAs should identify the amount of marketing and project development activity that is currently being supported in the market and consult with public and private sector stakeholders as to whether this is sufficient (see Operational Tools section for details)
Small size of projects and high transaction costs	This market failure is likely to exist if projects are proposed in EE in buildings, including housing. MAs should identify the level of support currently available for project and portfolio development within currently available public and private funding facilities (as identified in the sub-optimal investment situations analysis).
Scarcity of investment ready projects	MAs should consult with public and private sector stakeholders to identify whether there are investment-ready projects that do not have access to finance or if they will require significant project development activities (see Operational Tools section for details).
A lack of access to appropriate finance/high risks	For evidence of this market failure MAs should use data compiled from the sub-optimal investment situation analysis and provide a detailed overview of the current investment funds and facilities available for low carbon investments both from the private and public sectors and whether these are sufficient to fund the market size analysed. (see Operational Tools section for details)
A lack of capacity or experience in the supply chain	MAs should assess the availability of skills within the MA/MS to procure and implement EE and RE projects. This should include an assessment of the ESCO market within the MA/MS.



Box 5: Example of market failure rationale

Example: JESSICA Evaluation Study for London, Market Failure rationale³⁸

The JESSICA Evaluation Study for London, completed by Deloitte in 2008, is an example of an ex-ante assessment used for the 2007-2013 Programming Period.

The study identified the following market failures that supported the need for JESSICA in London:

- The general negative externality rationale used for climate change interventions;
- Lack of access to appropriate finance i.e. “at risk” capital that can deal with a long lead time to the generation of returns (a grace period), and uncertain risk profiles.

3.2.2 Analysis of existing suboptimal investment situations

A standard approach for MAs to identify sub-optimal investment situations under Thematic Objective 4 is described below. This is in line with Section 3.3 in the General Methodology

Table 5: Standard approach to identify sub-optimal investment situations

General Methodology	Low carbon specificity
<p>Identification of a quantitative EU/national/regional objective</p> <p>Additional step: Identify demand for EE and RE investments to meet quantitative objectives</p>	<ul style="list-style-type: none"> • Assess policy support for EE and RE as set out in the MS’s NEEAP and NREAP including any quantitative objective as set in addition to EU2020 objectives; • Assess additional regional-level policy support for specific EE and RE priorities at MA level (if MA is regional rather than national-level) through literature review and consultation with MA-level public authorities; • Analyse GHG, energy consumption and RE baseline in Programme area to identify progress to date against objectives; • Estimate investment required to meet low carbon objectives; • Analyse GHG and energy consumption by energy-end-user to identify potential for EE deployment across sectors; • Assess potential project typologies within EE and RE sectors that could be deployed within Programme area through consultation with public and private stakeholders.
<p>Trend analysis of existing investment volumes, including already existing promotional schemes at all levels</p>	<ul style="list-style-type: none"> • Estimate investment activity in EE and RE deployment within Programme area including existing public and private funds, and support instruments and incentives for each of the project typologies identified. This should include an assessment of the possibility for market-based instruments, including EPCs implemented by ESCOs; • Assess implementation experience of these funds and instruments including the amount of investment they have made, the sectors in which they have concentrated, and the level of public subsidy required.

38 Deloitte/European Investment Bank (2008).



General Methodology	Low carbon specificity
<p>Calculate the investment gap as the difference between the level of investment required to reach the target and the current level</p>	<ul style="list-style-type: none"> • Use qualitative and quantitative analysis of project typologies, funding available and experience to identify the types of investments that could be appropriate for an FI; • Estimate the investment gap in the Programme priorities through calculating the difference between the amount invested to date and an estimation of the amount needed to meet identified objectives.

3.3 Operational tools

MAs may find that data on sub-optimal investment situations and market failures within the low carbon economy is not readily available. Therefore much of the ex-ante assessment will involve consultation with relevant stakeholders.

The tools that MAs could use to collect this information include:

- A literature review of existing EE and RE policy within the Programme area, funding and financing mechanisms, and implementation experience. This should focus on any good practice guidance and lessons learned;
- Consultation with relevant stakeholders from both the demand and supply sides as well as with policy-makers.

The literature review and desktop research should collect all the relevant secondary information on EE and RE financing within the Programme area.

This should help to identify:

- The policies that are in place to support EE and RE within the Programme area;
- The regulatory environment for the low carbon economy;
- GHG emissions and energy end-use consumption by sector;
- The types of EE and RE projects that are currently being proposed within the MA;
- The successes and limits of existing public and private funding options and incentives for EE and RE.

Consultation should be undertaken with relevant stakeholders to identify the practical experience within the Programme area and further define sub-optimal investment situations and market failures.



Two groups of stakeholders should be addressed:

- Demand side stakeholders:
- Owners and operators of public estates (hospitals, universities, school boards, local government institutions, social housing organisations);
- Private sector housing associations;
- Regional and national authorities;
- Local government bodies.
- Supply side stakeholders:
 - Public sector funding institutions;
 - Public-private EE or RE funds;
 - Existing EU FIs;
 - commercial banks;
 - development banks;
 - venture capital institutions;
 - leasing and factoring companies;
 - Institutional investors.

4. Assessment of the value added of the financial instrument

Key questions to address when assessing the value added of the FI

1. Will an ESIF-supported FI generate value that would not have been possible through other existing FIs or funding schemes?
2. How much additional public and private sector finance could an FI leverage?
3. Would this additional finance be truly value-added or would it displace from other sources?
4. What other value would be created by the FI in terms of direct financial, direct economic and wider economic benefits?

4.1 Analysing the dimensions of the value added for the envisaged financial instrument targeting low-carbon economy

In the previous chapter we have presented the main methodological steps that need to be undertaken in order to demonstrate the presence of market failures and suboptimal investment situations in the market targeted by the envisaged FI. The results of this analysis are the necessary starting point in order to justify a public intervention using ESIF resources, by means of an FI aiming to support the shift towards a low carbon economy.

The General Methodology introduces the idea that, in most cases, the identified market failures and suboptimal investment situations can be addressed through several instruments, for instance through a grant or subsidy scheme and through a revolving instrument. Based on the assumption that both of these options would achieve the primary objective of the FI, the ex-ante assessment needs to demonstrate that the chosen solution delivers the highest value added. It is therefore necessary to compare the value added of the alternative options according to both quantitative and qualitative criteria.



The use of FIs is conditional on the existence of market failures and suboptimal investment situations, the lack of distortion of competition (State aid regulations) and being able to demonstrate the value added of such intervention.

Assessment of the value-added means that an ESIF-supported FI should fill market gaps that could not have been achieved at national level through a lack of available finance or capacity. Alongside this they should not distort the market or overlap or crowd-out private or public sector funding.³⁹

The general principles behind calculating the multiplier effect and the leverage effect are detailed in the general methodology. This section concentrates on how to calculate the additional value created by an FI supporting the low carbon economy.

The value added of an FI focused on supporting the low carbon economy will have four main elements as detailed in the Table below. In order to provide a realistic estimate of the value added of the FI, the MA will need to estimate the project portfolio for the fund including typical project characteristics.

Table 6: How to measure value added

Value added element	Metric	Measurement
Leverage effect	Amount of finance to final recipients divided by the amount of EU contribution	See General Methodology
Direct financial benefits	Energy savings	€
	Energy generated	€
	Project revenues	€
Direct economic benefits	Energy efficiency	%
	GHG reduction	CO ₂ e/kWh
	Monetised GHG reduction	MS-specific carbon price
	Number of properties renovated	Number
	Job creation	No. of jobs created and estimated economic value
Wider economic benefits	Productivity improvements	Increase in gross value added (GVA)
	Improvement in air quality	MS-specific measurement
	Reduction in energy poverty	No and % households reduction in energy poverty
	Health and welfare benefits	Qualitative measurement (survey-based)

39 Institute for European Environmental Policy (2012) p.32.



Box 6: Value added of the KredEx Renovation Loan fund in Estonia

Example: KredEx Renovation Loan Fund

The table below illustrates the value added of the KredEx Renovation Loan fund in Estonia. Results were taken from an October 2013 presentation by KredEx.

Leverage effect	Funding sources included: €17,7 million from ERDF €28,8 million from CEB €16 million from State loan €10,1 million from KredEx funds Total leverage effect = €72,6 million (total finance to final recipient)/€17,7 million (EU contribution)=4,1
Direct financial benefits	Energy savings of 39% (not measured in €)
Direct economic benefits	533 buildings renovated 20.350 apartments renovated 47.000 inhabitants involved 1.330.000 m ² renovated
Wider economic benefits	Not stated

4.2 Assess the consistency with other forms of public intervention addressing the same market

For this section please see the general methodology. It is not considered that there are specific procedural issues that apply to the low carbon sector as opposed to any other sector when considering consistency with other forms of public intervention.

The EU Budget Review highlights that the “EU budget should be used to finance EU public goods, actions that Member States and regions cannot finance themselves, or where it can secure better results.” This is essentially the subsidiarity principle and is a general principle of EU law. In addition, it is important to remind that FIs may be combined with grants, interest rate subsidies and guarantee fee subsidies.

4.3 Identify possible State aid implications

The approach to the assessment of State aid implications of the envisaged FI is presented in detail in the General Methodology (Vol. I, chapter 4.3). This chapter focuses exclusively on the



specificities for FIs targeting low-carbon economy. Therefore, the below methodology should be read and used together with the General Methodology.

Some low-carbon projects, for example some EE investments in private buildings or large-scale RE investments, should be sufficiently attractive to private sector investors not to require public funding. Therefore these types of investments should not receive State aid. Public funding should only be used in investments where there is a clearly identified market failure or sub-optimal investment situation. For example, this could be in the case for projects that have a certain level of return without being completely financially viable, such as large scale building retrofit or smaller-scale immature RE technologies.

Even when public funding is used, Member States may choose to design measures supporting EE and RE in such a way that the measures do not entail State aid under Article 107 (1) of the Treaty, for instance because they comply with the market economy operator test⁴⁰ or because they fulfil the conditions of the applicable *de minimis* Regulation.⁴¹ Such cases do not need to be notified to the Commission.

If the gross grant equivalent (GGE) of the aid is compliant with the *de minimis* ceiling defined by the Regulation, the support granted will not be considered as a State aid. In practice loans with principal amount up to €1 m under conditions not causing GGE to exceed €200,000 over any period of three fiscal years (*de minimis* loan conditions) do not need to be notified.

The *de minimis* guarantee conditions cover only newly originated loans, and the guaranteed part (max 80%) of the underlying loan shall not exceed €1.5 m under conditions not causing GGE exceed €200,000 (over any period of three fiscal years).⁴²

Such *de minimis* aid could be used for small-scale EE interventions in housing and public infrastructures.

When the public funding granted to a targeted undertaking⁴³ is not compliant with the *de minimis* conditions and is not granted on commercial terms (so as to comply with the market economy operator test), it is likely that State aid occurs.

40 Economic transactions carried out by a public body or a public undertaking do not confer an advantage on its counterpart, and therefore do not constitute aid, if they are carried out in line with normal market conditions, i.e. when, in similar circumstances, a private investor of a comparable size operating in normal conditions of a market economy could have been prompted to make the investment in question.

41 Please refer to the definition of State aid in the glossary.

42 A calculation of the maximum loan or guarantee amount can be done by calculating the GGE on the basis of the reference rate applicable at the time of the approval.

43 Undertaking is defined as an entity having an economic activity. Under certain circumstances individuals and public authorities could be considered as undertakings for the purpose of State aid analysis (e.g. a landlord renting his property, an individual or a local authorities installing a renewable electricity installations and selling part of the electricity produced to the grid).



The Community guidelines on State aid for environmental protection in force since 2008 have been revised and the new Guidelines on State aid for environmental protection and energy for 2014-2020 adopted by the Commission on 9 April 2014 will enter into force on 1 July 2014. The guidelines set out the conditions under which aid for energy and environment can be considered compatible with the internal market on the basis of Article 107(3)(b) and (c).⁴⁴

The Guidelines for State aid for energy and environmental protection should be seen together with the relevant rules contained in the draft General Block Exemption Regulation (GBER). The GBER exempts certain categories of aid from prior Commission scrutiny. FIs that provide investment aid for energy efficiency measures, promotion of renewable energy and cogeneration may fall under Section 7 of the General Block Exemption Regulation (Articles 37-42). MAs should refer to these Articles to assess the requirements and eligible aid intensity levels for individual projects and programmes.⁴⁵

Depending on the objective of the measure and the addressed market failure, other guidelines may apply, such as the Regional Aid Guidelines, which form a section of the GBER. Aid schemes that do not fulfil all the conditions of the GBER need to be notified to the Commission, who will assess them on a case-by-case basis in the light of the criteria set out in the applicable State aid guidelines, such as the Guidelines for State aid for energy and environmental protection.

The State aid implications just described will be embedded in the proposed off-the-shelf structures for energy efficiency measures in order to streamline their roll-out.

⁴⁴ Available at http://ec.europa.eu/competition/sectors/energy/eeag_en.pdf.

⁴⁵ Commission Regulation (EC) No 800/2008 of August 2008 declaring certain categories of aid compatible with the common market in application of Articles 87 and 88 of the Treaty (General Block Exemption Regulation). Please note that the new GBER is due to be published in July 2014. As a result this section of the ex-ante assessment methodology may need to be updated following the publication of the new regulation.

5. Additional public and private resources to be potentially raised by the financial instrument

Key questions to address when assessing sources of additional public and private resources to be potentially raised by the FI

1. Are there sources of available public finance, encompassing national and EU support, for projects in the low carbon economy that are currently not being used?
2. Are there any appropriate sources of private sector finance that could be leveraged into an FI?

5.1 Estimating additional public and private resources

5.1.1 Identification of the different potential sources

MAAs will need to define and estimate the additional amount of public and private sector resources that could be raised, down to the level of the final recipient. Examples of additional sources of financing are illustrated in Table 7. This could be from:

- Other national or regional Public Sector Support programmes;
- EU-level Programmes;
- Private sector finance;
- Market based mechanisms.



Table 7: Potential additional sources of financing

Potential additional sources of financing	Description
Other National Public Sector Support	MAs should investigate other national EE and RE support mechanisms within their national context.
EU Programmes	<p data-bbox="464 421 839 456">Connecting Europe Facility</p> <p data-bbox="464 465 1442 927">The Connecting Europe Facility (CEF) has been established by Regulation No. 1316/2013⁴⁶ and it determines the conditions, methods and procedures for providing EU financial assistance to TEN in order to support projects of common interest in the sectors of transport, energy and telecommunications. The total financial envelope for the 2014-2020 period amounts to 33,2 billion EUR, out of which 5,8 billion EUR for the energy sector. The regulation explicitly mentions FIs as a delivery mode for the CEF resources as a to promote substantial participation in infrastructure investment by the private sector and financial institutions, based on the consideration that, in most cases, sub-optimal investment and market failure situations may be more efficiently tackled by financial instruments than by grants.</p> <p data-bbox="464 936 823 972">Intelligent Energy Europe</p> <p data-bbox="464 981 1442 1272">The IEE was set up in the 2007 – 2013 programming period and it focused on the removal of non-technological barriers to EE and RE market uptake. For the 2014 – 2020 period it has been merged with Horizon 2020 which will continue its objectives to create favourable market condition, shaping policy development and implementation, preparing the ground for investments, building capacity and skills, informing stakeholders and fostering commitment.</p> <p data-bbox="464 1281 671 1317">Horizon 2020⁴⁷</p> <p data-bbox="464 1326 1442 1496">Horizon 2020 is the EU Framework Programme for Research and Innovation. It will run from 2014-2020 with a budget of over €70 billion. Over €30 billion will be available to help address issues such as climate change, developing sustainable transport and mobility, making RE more affordable etc.</p> <p data-bbox="464 1505 632 1541">EIB-ELENA⁴⁸</p> <p data-bbox="464 1550 1442 1836">The EIB-ELENA has been created at the initiative of the European Commission and the European Investment Bank (EIB) as a part of the IEE programme. As such it has been merged with Horizon 2020. The facility supports the Covenant of Mayors initiative, but is not restricted to entities having signed it. The general objective of EIB-ELENA is to assist the transition from preparing action plans to making large scale investments, usually higher than €50 million.</p>

46 Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 establishing the Connecting Europe Facility, amending Regulation (EU) No 913/2010 and repealing Regulations (EC) No 680/2007 and (EC) No 67/2010.

47 See: <http://ec.europa.eu/programmes/horizon2020/en/h2020-section/societal-challenges>.

48 See: <http://www.klimabuendnis.org/european-funds.html>.



Potential additional sources of financing	Description
	<p>KfW-ELENA⁴⁹ Since 2011, the KfW-ELENA offers a complementary approach to the existing ELENA in order to mobilise sustainable investments of small and medium sized municipalities and, where appropriate, Energy Service Companies (ESCOs) below €50 million.</p>
	<p>LIFE + Programme (2014-2020)⁵⁰ The new LIFE Programme will have two sub-programmes: one for Environment and one for Climate Action. The creation of a sub-programme for Climate Action upgrades the former thematic strand “climate change” under the LIFE+ Environment Policy and Governance component. It will cover the areas of: climate change mitigation, climate change adaptation and climate governance and information. According to the Regulation 1293/2013, the LIFE programme resources can be delivered through grants, public procurement contracts and financial instruments in the 2014-2020 period. €80 million have been earmarked to set up PF4EE, a facility providing long term and low interest capital to commercial banks for EE projects.</p>
	<p>2020 European Fund for Energy, Climate Change and Infrastructure (the Marguerite Fund) European infrastructure fund for long-term institutional investors to finance the implementation of projects in the transport, energy, climate and renewable sectors through equity investments.</p>
	<p>European Energy Efficiency Fund⁵¹ Launched on 1st July 2011 with global volume of €265 million. It provides tailor made debt and equity instruments to local, regional and national public authorities or public or private entities acting on their behalf. EEEF aims at financing bankable projects in EE (70%) RE (20%) and clean urban transport (10%) through innovative instruments and promoting application of the EPC. A technical assistance grant support (€20 million) is available for project development services linked to investments financed by the Fund.</p>

49 See: <http://www.eib.org/products/elena/>.

50 See: <http://ec.europa.eu/environment/life/index.htm>.

51 See: http://ec.europa.eu/energy/efficiency/financing/financing_en.htm.



Potential additional sources of financing	Description
Private sector finance	Private loan finance MAs should investigate any sources of private sector loan finance that may be available for EE or RE investments. This could include Infrastructure funds, Commercial banks, IFIs or national public financial institutions.
	Private equity finance MAs should investigate any sources of private sector equity finance that may be available for EE or RE investments. This could include institutional investors and private equity funds, and ESCOs.

Box 7: Sources for London Energy Efficiency Fund

Example of funding sources: London Energy Efficiency Fund

The London Green Fund (Holding Fund) is a £100m fund, funded by £50 million from the London ERDF Programme, £32 million from the Greater London Authority (regional public sector authority) and £18 million from the London Waste and Recycling Board (regional public sector agency).

The London Energy Efficiency Fund is funded by £50m from the London Green Fund and £50m match funding from the Royal Bank of Scotland (RBS) which is providing private loan finance (senior or mezzanine debt).

5.1.2 Budget saving options (contribution in kind and total investment costs approach)

There are no sector specificities in terms of budget saving options, therefore please refer to the general methodology.

5.1.3 Identification of the level at which additional resources intervene

As per the General Methodology, national public or private contributions can be made at all levels, including the beneficiary (financial intermediary) and final recipients (projects).

Please see the General Methodology for a full explanation and related diagrams.



5.2 Estimating the leverage of the envisaged financial instrument

There are no sector specificities in terms of the concept of leverage therefore please refer to the general methodology.

5.3 Attracting additional private resources

5.3.1 Preferential remuneration for private investors

There are no sector specificities in terms of preferential remuneration for private investors, therefore, please refer to the general methodology.

5.3.2 Remuneration for intermediaries or fund managers

There are no sector specificities in terms of remuneration for intermediaries or fund managers, therefore, please refer to the general methodology.

5.3.3 Competitive assessment process for preferential remuneration

There are no sector specificities in terms of a competitive assessment process for preferential remuneration, therefore, please refer to the general methodology.

5.3.4 Independent assessment process for preferential remuneration

There are no sector specificities in terms of an independent assessment process for preferential remuneration, therefore, please refer to the general methodology.

6. Lessons learnt

The purpose of this section is to focus on lessons learnt as part of a continuous improvement principle. Article 37 (2) (d) states that the ex-ante assessment shall include an assessment of lessons learned from similar instruments and ex-ante assessments carried out in the past.

6.1 Gathering relevant information

There are no sector specificities in terms of gathering relevant information, therefore, please refer to the general methodology.

6.2 Identifying success factors and pitfalls of past experience

During the programming period 2007-2013, Financial Instruments could be used in a limited number of sectors and “Energy Efficiency/Renewable Energies” (Article 44c of Council Regulation No 1083/2006), was one of them.

Consequently for Thematic Objective 4, despite a different regulation and a different terminology applicable to the programming period 2014-2020, there is some experience in using financing instruments. An ex-post evaluation or information on its performance should be sought on their performance.

An initial source of information is the Commission’s report *Summary of data on the progress made in financing and implementing financial engineering instruments co-financed by Structural Funds in the 2007-2013 programming period*.

According to this document, at the end of 2012 a total of 20 specific funds for Energy Efficiency or Renewable Energy were set up in 8 Member States. A high-level description of the typology of products provided is illustrated in Table 8 below.



Table 8: Implementation of FEI and typology of financial product offered in the programming period 2007-2013 (data as of 31 December 2012)

Member State	FEIs	Type of financial product	N of products offered	OP amounts disbursed € m
Bulgaria	1	Loans	13.392	86,4
Czech Republic	1	Guarantees	0	0
Denmark	2	Equity/Venture Capital	N.A.	2,9
Estonia	1	Other products	N.A.	0,3
Greece	2	Total	13.392	89,6
Italy	6			
Netherlands	1			
United Kingdom	6			
Total	20			

Some lessons learned from the implementation of JESSICA type FEI are presented in the box below.

Box 8: Example of JESSICA

The Energy Focused Urban Development Funds report (2012) includes several recommendations based on best practices and lessons learned from the analysed Energy Action Plans (EAPs).

Engagement: It is recommended that MAs take a co-operative multi-sector approach for complex projects. This is especially important in the energy sector which generally requires public and private cooperation. Engagement with appropriate stakeholders will be especially important for FIs since the political commitment and financial involvement of all may be required to determine project pipelines and implement projects.

Measurement: Setting the baseline for an energy strategy is important and the data sources and protocols described provide some best practice guidance (e.g. for some MAs measurement of GHG emissions baselines will not be relevant since it will be outside their responsibility. However, they should still be aware of the process).

Setting Vision and Targets: Ensuring relevant targets (long-term and short-term) that the objectives of an Energy Focused project can be aligned with is an important part of measuring and monitoring outputs and impacts. Timely, specific and achievable targets are best practice. Providing short term targets enables regular evaluation of progress and also allows adjustments if it is clear from the short term results that the long term targets are not on track.



Selecting Actions: There are a range of projects with the main types to focus on being: public and residential buildings, transport, energy supply, water, streetlighting and waste. Notwithstanding that projects have to be eligible under the relevant OP and to be eligible for FIs, the prioritisation of projects will depend on the effect and readiness of individual projects in addition to other positive socio-economic outcomes, and technical feasibility.

Delivering MAs should look to establish or be part of existing governance structures that involve the public and private sector stakeholders. For example, by involving organisations like housing associations who have the knowledge of the benefits of EE and RE measures can be spread to encourage investment.

Monitoring The monitoring processes used by the city-level EAPs analysed provide some best practice guidance but it is noted that this is a complicated process. In the short-term items such as energy produced from RE, energy costs savings and reductions in GHG emissions can be measured. Over a longer-term period the range indicators appropriate to the different sectors should be used in conjunction with an assessment of other strategies and actions undertaken.

6.3 Applying lessons learnt to enhance the performance of the financial instrument

There are no sector specificities in terms of identifying success factors and pitfalls of past experiences, therefore, please refer to the general methodology.

7. Proposed investment strategy

At this stage of the ex-ante assessment, the market failures and suboptimal investment situations to be addressed by the envisaged financial instrument have been identified and quantified to the extent possible. In addition, the value added of the possible solutions to address them has been assessed. Subsequently, the additional potential public and private resources to be raised by the FI have been considered as well as the lessons learned from the implementation of similar instruments in the past.

This process will have screened out some of the possible ways of supporting the shift towards a low carbon economy. The objective of the proposed investment strategy is to start defining the operational framework of the FI, bearing in mind that the proper investment strategy will need to be defined in the set up phase, when the funding agreements are finalised.

Key questions to address when assessing a proposed investment strategy

1. What are the options for implementation?
2. What types of projects should be funded by an FI?
3. What are the types of financial products that could be offered by an FI?
4. What final recipients should be targeted?

7.1 Process to develop a proposed investment strategy

The General Methodology provides an explanation of the steps to be followed in order to elaborate a proposed investment strategy. These block of analysis, applicable to any FI regardless the Thematic Objective; include the description of the process to define scale and focus of the envisaged FI as well as its foreseen governance structure.



7.2 Defining the scale and focus of the financial instrument

When the ex-ante assessment reaches the stage of development of the proposed investment strategy, the characteristics of the financial products to be offered and final recipients to be targeted will appear as fairly straightforward. Developing the proposed investment strategy, therefore, means drawing conclusions from all the previous analyses and using their results to structure an FI that will be effectively able to address the market needs.

As such, the proposed investment strategy should include the following elements:

- **Summary of the conclusions** of the market failure, value added, potential co financing and lessons learned analyses carried out so far. This will allow structuring the reasoning and demonstrating the rationale for the envisaged FI;
- **Target market**, i.e. the geographical scale at which the FI will be set up (national or regional);
- **Target final recipients**, i.e. the types of SMEs targeted in terms of sector, size and maturity;
- **Financial products** to be provided in order to respond to the identified needs of the final recipients;
- **Implementation option** chosen within the meaning of Article 38 CPR and the consequent governance implications for the setting up of the FI; and
- **Envisaged combination with grant support**, based on the conclusions regarding the appropriateness of blending with grants.

As discussed in the General Methodology, the investment strategy should not be excessively strict in the definition of the final recipients in order to facilitate absorption of the funds.

7.2.1 Characteristics of the financial product

MAAs should provide some high-level guidance on which types of financial product may be appropriate for the identified final recipients.

The table below demonstrates the typical financial products that are used for a range of project typologies in the low carbon economy. However, this is intended as guidance only, and MAAs should assess the specific funding environment, and in particular the sub-optimal investment situations analysis to identify the most relevant financial products.



Table 9: Typical financial products

Project typologies	Typical financial products
EE and RE in SMEs	<ul style="list-style-type: none"> • Grant support for energy audit and verification • Soft loan or guarantee mechanism that enables longer-term maturity of investment or lower interest • Cash back incentive related to planned EE savings
EE and RE in buildings	<ul style="list-style-type: none"> • Guarantee products • EPCs for measures with a shorter payback period • Credit lines for on-lending to EE projects • Mezzanine debt facilities • Grants for capital intensive measures with longer payback periods or to address social issues • Technical support
EE and RE in urban infrastructure	<ul style="list-style-type: none"> • Subsidised loans combined with grants to support longer payback periods or projects with low IRRs and high ERRs • Equity products for new technologies

Loan products

The types of loan financing products that have typically been offered in EE in buildings and housing FIs include:

- Dedicated credit lines to local financial institutions (for EE in housing);
- Mezzanine debt facilities (for EE in buildings).

Dedicated credit lines enable a fund of funds to establish a loan facility through local or national commercial financial institutions that can combine ESI funds with private leveraged finance.

These local or national financial institutions can then directly fund energy end-users.

According to the European Commission and the Institute for Energy, “the most common EE financial product is a loan directly to the energy end-user (owner of the premises) or to a project developer (e.g. an ESCO) - this is known as third-party financing.”⁵²

Soft loans in particular have been a popular way of funding EE through FIs. Soft loans that are offered through dedicated credit lines for EE in housing projects tend to offer some incentives to support take-up. Loan incentives can include:

52 European Commission, Institute for Energy (2010).



- Extended payback periods.

This is where finance is spread over a longer period that generally available in the market and can suit projects with low IRRs over a short term but more commercially-attractive IRRs in the long term.

- Low/subsidised interest rates.

Low and subsidised interest rates were offered in both the Lithuania and Estonian JESSICA funds for EE and RE in multi-family housing. They are also the most common form of financing under the KfW Housing Renovation Programme in Germany. They enable projects with lower IRRs to obtain financing, and enable deeper retrofits that combine technologies with high IRRs (e.g. energy efficiency lighting) with measures with low IRRs (e.g. insulation of building envelope).

- Interest rate deferral periods.

An interest rate deferral period can be used to stop the accruing of interest during project implementation. This then lowers the total financing cost for the project sponsor and improves the commercial attractiveness of the project.

- Payback grace periods.

A payback grace period is similar to an interest rate deferral period. They tend to be offered during project implementation so that the project sponsor only starts repaying the loan after the project has been finished. This also lowers the total financing cost for the project sponsor.

- Interest rate subsidies for levels of EE achieved.

Interest rate subsidies can be offered for projects that achieve certain thresholds of EE.

Guarantees

Guarantees can be particularly useful in EE projects in buildings since they can lower the cost of finance that recipients can secure from commercial banks. There are many examples of these types of financial products being offered throughout Europe including by:

- KfW in Germany⁵³;
- Czech Guarantee and Development Bank in the Czech Republic⁵⁴;

53 See: <https://www.kfw.de/>.

54 See: <http://www.cmzrb.cz/>.



- KredEx in Estonia⁵⁵;
- BPME and Ademe in France⁵⁶;
- Bulgarian Energy Efficiency Fund⁵⁷.

Experience in using ESIF resources to finance such instruments already exist, as demonstrated by KredEx in Estonia.

The other examples cited above do not use structural funds but are often co-financed by national promotional banks, commercial banks and multilateral donors, such as EBRD in the case of the Bulgarian Energy Efficiency Fund. The text box below provides an example of how guarantees are used in the Bulgarian context.

Box 9: Guarantees in EE financing - Bulgarian Energy Efficiency Fund

Example: Guarantees in EE financing - Bulgarian Energy Efficiency Fund (BEEF)⁵⁸

The BEEF offers partial credit guarantees (80% on a pari passu basis and 50% on first loss basis), in addition to portfolio guarantees for ESCOs and for the residential sector. The ESCO portfolio guarantee covers up to 5% of defaults of delayed payments of an ESCO portfolio. The purpose of the guarantee is to enable the recipients to secure better financing terms on their debt with commercial banks.

In terms of the residential property guarantee, BEEF helps occupants in multi-family housing to develop their projects. The project developer itself will get the financing from BEEF and then repayments are made by individual occupants in proportion to their apartment area. BEEF guarantees up to 5% of the defaults within the multi-family housing block or portfolio. This product is being developed as a partnership with commercial banks.

Equity products

Equity products tend to be rather expensive for EE investments, however, they could be used for investments in innovation urban low carbon infrastructure, such as demonstrated in the Foresight Environmental Fund.

55 See: <http://www.kredex.ee/en/>.

56 See: <http://www2.ademe.fr/servlet/getDoc?id=38480>.

57 See: <http://www.bgeef.com/display.aspx>.

58 European Commission, Institute for Energy (2010) p.13.



Box 10: Equity products in EE financing - Foresight Environmental Fund

Example: The Foresight Environmental Fund⁵⁹

The Foresight Environmental Fund (FEF) is a £60m institutional fund which invests in waste recycling and renewable energy projects in the Greater London area. Launched in 2011, it encompasses a £35 million commitment from the London Green Fund as well as contributions from the European Regional Development Fund (ERDF) and the London Waste and Recycling Board (LWARB). Other LP's invested in FEF include predominantly UK Pension Funds.

FEF invests in waste-to-energy and recycling plants in the Greater London area which promote sustainable and carbon neutral economic growth. The expected outcomes of the investment programme include the diversion of considerable volumes of municipal and commercial waste from landfill each year, reducing harmful greenhouse gas emissions, and developing sustainable employment opportunities in areas of London that need regeneration.

Energy Performance Contracting

FIs can be instrumental in providing finance for ESCOs to implement performance-based contracts to undertake EE projects in existing buildings.

However, ESCOs are only effective where the public sector has created the enabling legislative and regulatory frameworks, and there is sufficient capacity in the market.

7.2.2 Identify targeted final recipients

MA's should define the eligible final recipients. This should be in line with the MA's Operational Programme and could include:

Table 10: Examples of potential eligible final recipients by investment priorities

Investment Priorities	Examples of potential eligible final recipients
Promoting the production and distribution of renewable energy sources	<ul style="list-style-type: none"> • Private companies; • Municipal authorities.
Promoting energy efficiency and renewable energy use in enterprises	<ul style="list-style-type: none"> • Private companies

⁵⁹ See: <http://www.foresightgroup.eu/page/569/Foresight-Environmental-Fund.htm>.



Investment Priorities	Examples of potential eligible final recipients
Supporting energy efficiency, smart energy management and renewable energy use in public infrastructures, including in public buildings, and in the housing sector	<ul style="list-style-type: none"> • Private households (multi-apartment buildings and small buildings/houses); • Private companies; • Local, regional and national authorities (administration buildings) • Housing associations, including social housing; • Other public buildings (e.g. schools, hospitals, etc.)
Developing and implementing smart distribution systems that operate at low and medium voltage levels	<ul style="list-style-type: none"> • Private companies; • Municipal authorities; • Local, regional and national administrations.
Promoting low carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures	<ul style="list-style-type: none"> • Municipal authorities; • Local, regional and national administrations.
Promoting research and innovation in, and adoption of, low-carbon technologies	<ul style="list-style-type: none"> • Private companies; • Public and private research institutes.
Promoting the use of high-efficiency co-generation of heat and power based on useful heat demand	<ul style="list-style-type: none"> • Private companies; • Municipal authorities; • Local, regional and national administrations.

7.3 Defining the governance structure of the financial instrument

7.3.1 Analyse different options for implementation arrangements

7.3.1.1 Choice of FI implementation option

For the 2014-2020 programming period there is the option of an MA using ESI Funds to contribute to EU-level instruments. Of particular relevance are those supported under the COSME and Horizon 2020 as well as the LIFE + Programmes, as discussed in section 5.1.1. ESIF funding will be ring-fenced for investment in the geographic area and specific objectives covered by the Programme. This option will need to be explored further by MAs if deemed attractive.

As per the 2011 Communication from the Commission to the European Parliament and the Council, *A Framework for the next generation of innovative financial instruments* “Member States would be encouraged to invest part of their structural funds in compartments of EU level instruments “ring-fenced” for investments in regions and policy areas covered by operational programmes from which structural funds resources are contributed.”



Joint instruments relating to supporting the low carbon economy for the 2014-2020 programming period are included in Section 5.1.1 (Table 7).

7.3.1.2 Choice of FI type

Off-the-shelf FIs

Off-the-shelf FIs or FIs complying with standard terms and conditions laid down by the Commission are meant to facilitate a swift roll-out of specific FIs during the 2014-2020 programming period. For low carbon investments⁶⁰, one off-the-shelf typology has been developed: a Renovation Loan for EE or RE in the residential building sector. This can be used where MAs have a large stock of buildings that require renovation and have a market failure and sub-optimal investment situation with regard to access to appropriate finance.

Term sheets on the off-the-shelf instrument⁶¹ will cover the elements foreseen in annex of the CPR to establish a funding agreement to implement a financial instrument under Article 38(4)(a) or (b). Managing authorities may add conditions to the term sheets if not altering the minimum technical and legal requirements.

Tailor-made FIs

Tailor-made FIs are useful for flexibility and addressing particular market gaps.

Off-the-shelf and tailor-made FIs could be offered in parallel in order to address market failure and sub-optimal investment situation identified in the ex-ante assessment.

7.3.2 Envisaged combination with grants

Experience to date demonstrates that parts of the project development including the energy audit have been financed by grant instruments, and cofinancing required by a homeowner itself can also be financed by grants. This has been the case in both the Lithuania and Estonia examples. In both cases, FI support and grants were channelled to final recipients through separate FI and grant operations. Further details in relation to the possible ways of combining grants and FI under the CPR are presented in the General methodology.

⁶⁰ Article 38(3)(a) of the CPR sets out that the MA may provide a financial contribution to “financial instruments complying with the standard terms and conditions laid down by the Commission, by means of implementing acts in accordance with the examination procedure.

⁶¹ Standard terms and conditions for financial instruments pursuant to Article 38(3)(a) of the CPR (Implementing Act).

8. Specification of expected results consistent with the relevant Programme

8.1 Establishing and quantifying the expected results of the financial instrument

Please refer to the General Methodology for a general approach to establishing and quantifying the expected results of the FI.

Nonetheless it seems important to provide examples of indicators that could be used to measure the expected results of the envisaged FI targeting the shift towards low-carbon economy, as shown in Error! Reference source not found. The table below is based on the investment priorities and the common output indicators set out in the ERDF and the CF Regulations.

Table 11: Potential indicators by investment priorities/Investment

Investment Priorities	Potential Indicators
Promoting the production and distribution of renewable energy sources	<ul style="list-style-type: none">• Additional capacity of renewable energy production (MW);• Annual generation from renewable sources (MWh/year);• Renewable share of total energy generation (%).
Promoting energy efficiency and renewable energy use in enterprises	<ul style="list-style-type: none">• Improvement of average heating/cooling demand in certain type of buildings in kWh/m²/year;• Decrease in energy intensity in kgoe/€1.000;• Estimated annual decrease of GHG (t CO₂e);• Percentage reduction in GHG emissions (%);• Increased energy efficiency in SMEs;• Jobs created;• GVA generated through increased productivity.



Investment Priorities	Potential Indicators
Supporting energy efficiency, smart energy management and renewable energy use in public infrastructures, including in public buildings, and in the housing sector	<ul style="list-style-type: none"> • Number of households with improved energy consumption classification; • Decrease of annual primary energy consumption of public buildings in kWh/year; • Improvement of average heating/cooling demand in certain type of buildings in kWh/m²/year; • Decrease in energy intensity in kgoe/€1.000; • Estimated annual decrease of GHG (t CO₂e); • Percentage reduction in GHG emissions (%); • Increased energy efficiency in SMEs; • Jobs created; • Decrease in % of households in energy poverty.
Developing and implementing smart distribution systems that operate at low and medium voltage levels	<ul style="list-style-type: none"> • Number of additional energy users connected to smart grids; • Total reduction in GHG emissions (CO₂e); • Percentage reduction in GHG emissions (%); • Jobs created.
Promoting low carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures	<ul style="list-style-type: none"> • Additional capacity of renewable energy production (MW); • Total reduction in GHG emissions (CO₂e); • Percentage reduction in GHG emissions (%).
Promoting research and innovation in, and adoption of, low-carbon technologies	<ul style="list-style-type: none"> • Number of new researchers in supported entities (full-time equivalent); • Number of enterprises supported to introduce new to the market products; • Number of enterprises supported to introduce new to the firm products; • Number of enterprises cooperating with research institutions.

8.2 Specification of how the financial instrument will contribute to the strategic objective

Please refer to the General Methodology for guidance on the specification of how the FI will contribute to the strategic objective.

8.3 Monitoring and reporting

Please refer to the General Methodology for guidance on monitoring and reporting.

9. Provisions for the update and review of the ex-ante assessment methodology

There are no sector specificities in terms of updating and reviewing the ex-ante assessment methodology, therefore, please refer to the General Methodology.

10. Ex-ante assessment completeness checklist

No specificities to the general approach are foreseen under Thematic Objective 4 to the completeness checklist described in chapter 10 of the General Methodology.

Appendix A

List of useful documents

1. Deloitte/European Investment Bank (2008) Scoping the use of JESSICA in London;
2. DG Regio (2013) Summary of Data on the progress made in financing and implementing financial engineering instruments co-financed by Structural Funds, situation as at 31 December 2012;
3. European Commission (2011a) Communication from the Commission to the European Parliament and the Council, A framework for the next generation of innovative financial instruments – the EU equity and debt platforms;
4. European Commission (2011b) Summary Report on the Progress Made in Financing and Implementing Financial Engineering Instruments Co-Financed by Structural Funds;
5. European Commission (2011c) Proposal for a Regulation of the European Parliament and of the Council on specific provisions concerning the European Regional Development Fund and the Investment for growth and jobs goal and repealing Regulation (EC) No 1080/2006;
6. European Commission (2012a) Expert evaluation network: the use of the ERDF to support Financial Engineering Instruments;
7. European Commission (2012b) Financial Engineering Instruments Implemented by Member States with ERDF Contributions (Article 44 of Council Regulation No 1083/2006);
8. European Commission (2012c) Proposal for a Regulation of the European Parliament and of the Council laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund covered by the Common Strategic Framework and laying down general provisions on the European Regional Development fund, the European Social Fund and the Cohesion Fund and repealing Council Regulation (EC) No 1083/2006;
9. European Commission (2013d) Guidance on Ex Ante Conditionalities Part II;
10. European Commission (2013e) Renewable Energy Progress Report;
11. European Commission (2014) Technical Guidance, Financing the energy renovation of buildings with Cohesion Policy funding
12. European Commission (2013f) Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Renewable Energy Progress Report;



13. European Commission/European Investment Bank (2008) Scoping the Use of JESSICA in London;
14. European Commission/European Investment Bank (2010) JESSICA Instruments for Energy Efficiency in Greece, Evaluation Study, Final Report;
15. European Commission/European Investment Bank (2012) Energy Focused Urban Development Funds;
16. European Commission/European Investment Bank (2013) A Stock-Taking Exercise in Preparation for the 2014-2020 Programming Period;
17. European Commission/Institute for Energy (2010) Financing Energy Efficiency: Forging the Link Between Financing and Project Implementation;
18. European Commission/Institute for Energy (2010) Energy Service Companies Market in Europe, JRC Scientific and Technical Reports;
19. Institute for European Environmental Policy (2012) The Use of Innovative Financial Instruments for Financing EU Policies and Objectives: Implications for EU and National Budgets;
20. Institute for European Environmental Policy (2013) Presentation on Use of Financial Instruments Way Forward in the 2014-2020 EU MFF;
21. INTERACT (2013) Financial Instruments in European Territorial Cooperation Programmes 2014-2020
22. KredEx (2013) Presentation by Mirja Adler on Estonian KredEx for Renovation Loans
23. Mayor of London (2011) Making Business Sense of Waste, The Mayor's Business Waste Strategy for London
24. Mayor of London (2011) London's Waste Resource, The Mayor's Municipal Waste Management Strategy
25. Nicolaidis, P. (2013) Financial Engineering Instruments and their Assessment under EU State Aid Rules, College of Europe
26. OECD/International Energy Agency (2011) Joint Public-Private Approaches for Energy Efficiency Finance: Policies to scale-up private sector investment
27. Regeneris Consulting Ltd and Oldbell3 (2013) Wales Ex-Ante Evaluation of European Programmes 2014-20 Financial Instrument

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