MINISTRY OF ECONOMICS OF THE REPUBLIC OF LATVIA

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Financial accessibility for energy efficiency improvement in multi-apartment buildings

Ex ante assessment

European Union investment funds for the programming period 2014 - 2020

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Abbreviations and definitions

II NEEAPL	Second National Energy Efficiency action plan of Latvia 2011 - 2013
Activity 3.4.4.1	Activity "Measures of improving heat insulation of multi-apartment buildings", complement 3.4.4.1 to the Operational Programme "Infrastructure and services"
DFI	Joint-stock Company Development Financial Institution
Altum	Joint-stock Company Latvian Development Financial Institution Altum
JSC	Joint-stock Company
CEB	Council of Europe Development Bank
CFCA	Central Finance and Contracting Agency
CSB	Central Statistical Bureau of Latvia
CSoAO	Cooperative society of apartment owners
SoAO	Society of apartment owners
EBITDA	earnings before interest, taxes, depreciation and amortization
EE	Energy Efficiency
EEA	European Economic Area
EIB	European Investment Bank
EC	European Commission
EKPI	European Neighbourhood and Partnership Instrument
MoE	The Ministry of Economics of the Republic of Latvia
Energy Efficiency Directive	Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing 2004/8/EC and 2006/32/EC
EPC	Energy performance contract
EBRD	European Bank for Reconstruction and Development
ERDF	European Regional Development Fund
ERDF Regulation	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
ERR	Economic Rate of Return
EU	European Union
ESI Funds	European Structural and Investment Funds – European Regional Development Fund, European Social Fund, Cohesion Fund, European Agricultural Fund for Rural Development, European Maritime and Fisheries Fund
ESCo	Energy service company

ETS	Emission allowance trading scheme
EUR	Euro, the single currency of the European Union
EURIBOR	Euro Interbank Offered Rate
Ex ante Assessment	Financial affordability of the increase of energy efficiency in multi-apartment buildings *Ex ante* assessment for the 2014 – 2020 EU funds programming period
Ex ante Assessment Methodology	European Investment Bank's Ex ante assessment methodology for financial instruments in the 2014 – 2020 programming period, Volume I General methodology and Volume IV Supporting the shift towards low-carbon economy
BP&ESB	LLC Ēku saglabāšanas un energotaupības birojs (Building Preservation and Energy Saving Bureau)
FI	Financial instrument
HIPO	Joint-stock Company Latvijas Hipotēku un zemes banka (Mortgage and Land Bank of Latvia)
Informative report	17 March 2014 Informative report On the progress towards the indicative national energy efficiency targets in 2014 – 2016 in line with Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing 2004/8/EC and 2006/32/EC
GDP	Gross Domestic Product
IRR	Internal Rate of Return
JESSICA	Joint European Support for Sustainable Investment in City Areas
K	Kelvin [grades temperature]
CF	Cohesion Fund
KfW	Kreditanstalt für Wiederaufbau – development bank of the Federal Republic of Germany
CCFI	Climate Change Financial Instrument
KredEx	Estonian Credit and Export Guarantees Fund – financial institution of the Republic of Estonia, offering financial services to Estonian companies and individuals
kWh	Kilowatt-hour
LBN	Latvian Construction Standard (*Latvijas būvnormatīvs*)
LIAA	Investment and Development Agency of Latvia AMALH
AMALH	Association of Management and Administration of Latvian Housing
LGA	Limited Liability Company Latvian Guarantee Agency
LALRG	Latvian Association of Local and Regional Governments
Cabinet	Cabinet of Ministers
MWh	Megawatt-hour
Mtoe	Million tonne of oil equivalent (1 TOE = 11.63 MWh)
m^2	Square metre

NAP 2020	Latvian National Development Plan for 2014-2020
NIB	Nordic Investment Bank
NREC IS	National Real Estate Cadastre Information System
NPV	Net Present Value
NRP	National reform programme for implementation of EU2020 strategy
Council Regulation No 1083/2006	Council Regulation (EC) No 1083/2006 of 11 July 2006 laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund and repealing Regulation (EC) No 1260/1999
MESCo	Municipal energy service company
Portfolio Guarantee	Guarantee, whereby the lender's loan portfolio to a definite group of borrowers with defined parameters. Loans are included in the guarantees portfolio according to the defined parameters, and the guarantor does not make a decision on a guarantee to each individual loan
VAT	Value Added Tax
LLC	Limited Liability Company
SPV	Energy service provider's target company, which uses investment fund or long-term loans granted by other financial intermediaries to refinance ESCo financial liabilities and inclusion on their balance-sheet
t	Tonne
MEPRD	Ministry of Environmental Protection and Regional Development
GBER	Commission Regulation (EC) No 800/2008 of 6 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)
Common Provisions Regulation	Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013, 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 and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006.
W	Watt

Summary

There are approximately 1 million dwellings in Latvia, 69% of which are located in multi-apartment buildings. The major part of these buildings is built prior to the restoration of national independence. Characteristic to these buildings is that their structural framework and engineering systems are of a high degree of wear, and their feature is low energy efficiency.

In European Union (hereinafter – EU) 2007-2013 programming period Latvia initiated focused implementation of promotional measures to improve the energy efficiency of multi-apartment buildings under the European Regional Development Fund (hereinafter – ERDF) Activity 3.4.4.1 "Measures of improving heat insulation of multi-apartment buildings" (hereinafter – Activity 3.4.4.1).

According to information provided by the Ministry of Economics (hereinafter –MoE), implementation of 535 projects using ERDF funding of EUR 43.4 million was completed by 12 February 2015 and agreements on implementation of yet another 324 projects using ERDF funding of 32 million EUR as at this date. By 12 February 2015, the amount of the ERDF funding disbursed to funding recipients was EUR 43 million, or 53% of the total available public funding.

Regardless of the measures to increase the energy efficiency of multi-apartment buildings accomplished in previous years, at this moment, only approximately 6% of multi-apartment buildings in Latvia comply with thermal insulation requirements of buildings established in regulatory enactments of Latvia. The Government of Latvia is to proceed with providing aid to improve the energy efficiency of multi-apartment buildings in the EU 2014 – 2020 programming period. **The intended form of aid implementation is a combination of financial instrument** (hereinafter – FI) **and grants**.

Ex ante assessment of financial affordability of the increase of energy efficiency in multi-apartment buildings (hereinafter – *Ex ante* Assessment) has been developed according to provisions of Article 37 of Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013, 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 and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006 (hereinafter – Common Provisions Regulation) on contents of *Ex ante* assessment of market failures. The *Ex ante* Assessment has been done, besides the provisions of the Common Provisions Regulation, in compliance with the European Investment Bank's *Ex ante* assessment methodology for financial instruments in the 2014 – 2020 programming period Volume I General methodology and Volume IV Supporting the shift towards low-carbon economy (hereinafter – *Ex ante* Assessment Methodology).

According to Article 37 of the Common Provisions Regulation, the goal of *Ex ante* Assessment is to provide an objective market analysis, by employing qualitative as well as quantitative research methods, identify and, when feasible, to quantify the existing market failures, suboptimal investment situations, estimate the investment needs (funding deficit) to carry out the energy efficiency increase measures and draft an investment strategy for FI implementation.

Raising energy efficiency of multi-apartment buildings requires an integrated approach, attaining a post-renovation annual heat demand index of 70–90 kWh/m^2/yr (for heating without hot water consumption). To achieve such annual heat demand, the cost of investment per square metre of the total area of building should be approximately EUR 150, which includes carrying out energy efficiency increase measures, as well as renovation of engineering systems required for residential building operation, accounting for sustainability of energy efficiency measures.

Thus, the total financial requirement of energy efficiency increase investment projects of financially sustainable multi-apartment buildings is **EUR 5.4 billion**.

The 17 March 2014 Informative report On the progress towards the indicative national energy efficiency targets in 2014 – 2016 in line with Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing 2004/8/EC and 2006/32/EC (hereinafter – Informative report) indicates that the indicative national energy efficiency target for Latvia defined in line with the requirements of Article 3 of Directive 2012/27/EU, based on the primary energy savings in 2020, is 0.670 Mtoe (7 792 MWh). **The portion of the energy efficiency target pertaining to multi-apartment buildings is 0.023 Mtoe (263 GWh).** According to the Activity 3.4.4.1 implementation results, the average heating energy savings per year obtained as a result of renovation of one building are 156 MWh. In order to achieve the energy efficiency target established by the Government of Latvia for the multi-apartment buildings sector until year 2020, **energy efficiency needs to be increased in approximately 1 700 multi-apartment buildings**.

Loans for renovation of multi-apartment buildings are granted by JSC Swedbank, JSC SEB Banka, JSC DNB banka, JSC Citadele banka and Nordea Bank AB Latvian branch. The most active market players are JSC SEB Banka and JSC Swedbank, which have developed multi-apartment building renovation loan portfolios. JSC SEB Banka has the largest loan portfolio with more than 300 granted loans). JSC DNB banka is also a relatively active player.

According to the information provided by JSC Swedbank about the multi-apartment building renovation loan portfolio of this credit institution, the repayment term of the principal amount of granted loans does not exceed 11 years, the average volume of granted loans per project is EUR 174 000, the range of interest rates is between 2.79% and 7.50%.

The Association of Commercial Banks of Latvia does not consolidate information about loans granted by credit institutions for renovation of multi-apartment buildings. According to the information provided by LLC Latvian Guarantee Agency, the average annual total interest rate (fixed interest rate and EURIBOR) to 96 loan guarantees granted by three credit institutions to lending to multi-apartment buildings in 2014 was 4.45%.

Multi-apartment building renovation loan security is future cash flows and timely payments of apartment owners for household management. Therefore, multi-apartment buildings should have the proportion of debtors as low as possible (up to 5% during the past 12 months). Credit institutions do not grant loans in administrative territories, where the real estate (apartment) market value per 1 m^2 is lower than construction costs per 1 m^2.

As a result of *Ex ante* Assessment, the market failures listed below were identified, supporting the need for FIs.

Structural market failures

Structural market failures are related to the negative side-effects of the environmental pollution caused by multi-apartment buildings to the public (greenhouse gas emissions).

Reduction of structural market failures would require employing funds of the Climate Change Financial Instrument for funding the increase of energy efficiency of multi-apartment buildings within the timeframe of 2015 and 2020. CCFI funding for this purpose has not been assigned for the time being.

Suboptimal investment situations

For improvement of energy efficiency level of multi-apartment buildings, their owners fail to raise the optimal volume of capital investments for the reasons listed below:

- It is typical for multi-apartment buildings in Latvia that their structural framework and engineering systems are worn to a high degree, which pushes up the building renovation costs.
- Multi-apartment buildings have a long energy efficiency increase measures investment payback period (in some cases even exceeding 20 years; 21-year life-cycle, including a 1-year project implementation period, the average financial return is 2.7%). It limits the option of funding the house's renovation and increase of its energy efficiency from savings on heating energy (as a result of implementation of an energy efficiency increase project, apartment management costs of a household may go up instead of decreasing).
- The paying capacity of households is limited that they could afford to increase the monthly apartment management fee. Furthermore, apartment owners in multi-apartment buildings are cautious with respect to assuming additional commitments, especially when they are long-term loan commitments.

In case of suboptimal investment environment, the volume of capital investments in increase of energy efficiency of multi-apartment buildings is going to shrink at least 4-5 times (considering the limited options of multi-apartment building owners to bring in private funding for improvement of the building), if owners of multi-apartment buildings do not have financial support available (funding by grant and/or reduced loan interest rates). As a result of that, multi-apartment building owners will only carry out the indispensable building renovation and energy efficiency increase measures, thus failing to attain the energy efficiency targets established by the Government of Latvia by 2020.

Informational asymmetry and scarcity

Informational asymmetry and scarcity occurs when credit institutions face the risks when lending to energy efficiency increase projects in multi-apartment buildings: social and economic, liquidity and construction risks.

Credit institutions are unable to objectively evaluate these credit risks, therefore they either avoid lending to energy efficiency increase projects in multi-apartment buildings, or offer to do it at higher interest rates.

The major group of credit risks is social and economic risks (the paying capacity of individuals during the loan agreement) that cannot be credibly forecasted and influenced, neither by credit institutions, nor the public sector.

Scope of projects and transaction costs

The average volume of costs of increasing multi-apartment buildings' energy efficiency is not large and does not exceed EUR 200 000. Lack of project standardization and their small scope drives loan administration costs up and dampens the initiative of credit institutions for granting loans for energy efficiency increase of multi-apartment buildings. Whereas, in cases where house managers have acquired experience and won the trust of banks in project implementation, enterprises face capital adequacy problems.

The abovementioned problems can be solved by stimulating project batching into lots, standardization of energy efficiency solutions and offering financial products (government-backed loan guarantees, target enterprises for refinancing of current credit liabilities) to eliminate capital adequacy problems of enterprises – house managers and energy service companies.

Lack of capacity and experience

One of the reasons that dampens the activity of lending to the energy efficiency increase projects in multi-apartment buildings and drives loan interest rates up, is the lack of experience of multi-apartment building owners and house managers in renovation of buildings, increase of energy efficiency and effective management. In order to eliminate this market deficiency, the central and local governments should provide the required technical aid to improve the capacity of multi-apartment building owners and house managers, which includes establishment of an energy efficiency centre of competence of the joint-stock company Development Financial Institution (hereinafter – DFI). Along that, activities must be carried out to promote the introduction of energy efficiency service contracting in Latvia by employing ESCo and MESCo schemes.

The table below provides the estimate of the deficit of funding for the increase of energy efficiency of multi-apartment buildings.

Table S1 The estimate of the deficit of funding for the increase of energy efficiency of multi-apartment buildings (EUR)

Funding deficit (attainment of national energy policy goals in 2020)		**Funding deficit (heating energy end consumers, or the total funding deficit)**	
Variables	**Values**	**Variables**	**Values**
Primary energy savings (national indicative energy efficiency target)	0.670 Mtoe (7 792 MWh)	Total quantity and area of multi-apartment buildings	38 600 54.4 million m^2
Portion of the energy efficiency target pertaining to multi-apartment buildings	0.023 Mtoe (263 GWh)	Quantity and area of multi-apartment buildings, where cost-effective renovation is feasible	25 000 38 million m^2
Investment volumes required to attain 1 MWh heating energy savings per annum	1 000 EUR	Quantity and area of buildings that potentially could be renovated for energy efficiency purposes	23 500 (94% of 25 000) 36 million m^2 (94% of 38 millions m^2)
Total investment costs (EUR) for attainment of the portion of the energy efficiency target pertaining to multi-apartment buildings	263 million EUR (263 GWh * 1 000 * 1 000 EUR)	Costs of energy efficiency increase measures and other indispensable renovation activities EUR/m^2	150 EUR/m2
Heating energy savings per year per one multi-apartment building[1]	156 MWh	The total financial requirement	EUR 5.4 billion
The total quantity of to be renovated multi-apartment buildings for the attainment of the energy efficiency target	1 700 (263 GWh/156 MWh ≈1 700)	Proportion of buildings, the owners of which are potentially interested in employment of FI	60%
		Total investment costs (actual financial requirement)	3.2 billion EUR (60% of 5.4 billions EUR)[5]
Public (state) funding[2]	177 million EUR	Public (state) funding[2]	177 million EUR
Local government's funding[3]	12 million EUR	Local government's funding[3]	12 million EUR

Private funding[4]	17 million EUR (10 000 EUR * 1 700 buildings)	Private funding[4]	141 million EUR (10 000 EUR per building * 14 100 buildings (25 000 * 94% * 60%))
Funding deficit	**57 million EUR**		**2.9 billion EUR**

The **deficit of funding** to increase of energy efficiency of multi-apartment buildings for the **attainment of national energy policy goals in 2020 is EUR 57 million**, while **the total** deficit of funding for the increase of energy efficiency of multi-apartment buildings (from the point of view of heating energy end consumers) is **EUR 2.9 billion**. This deficit can be partially financed by engaging additional public resources, or private funding. Private funding (loans of credit institutions and other financial intermediaries) can be brought in by employing leveraging and introducing FI.

The most appropriate solution in the current market situation is introduction of two FI alternatives – **indirect FI (loans of credit institutions) and direct FI (DFI loans),** which are respectively combined with grants and loan guarantees. Direct FI is necessary to promote a balanced development of Latvian regions outside the capital city and ensure equal access to financial resources for multi-apartment building owners throughout the entire territory of Latvia on terms acceptable to households.

Government-backed loan individual guarantees are intended as an indirect FI, which would respectively push loan interest rates down (total annual interest rate lower than 5% per annum). Indirect FI is to be combined with grants for up to 50% of project costs. Direct FI is to be in the form of DFI loan having total loan interest rate up to 3% and loan principal amount the payback period up to 20 years. Indirect FI is to be combined with grants for up to 35% of project costs.

The estimated FI **leverage (multiplier) effect** is **EUR 204 million** (funding by commercial banks and credit resources received from DFI) **or 567%**, compared to public funding contribution in FI (funding of EUR 34 million from ESI Funds). The total forecasted FI amount is **EUR 240 million**, including the public and private funding.

The quantity of multi-apartment buildings intended for renovation within the framework of FI **is 1 770**. The combined FI and grants volume of funding for implementation of energy efficiency increase projects is **EUR 354 million** (does not include the costs of DFI competence centre, direct FI, guarantees and grants management costs), assuming that the average renovation costs of a multi-apartment building is EUR 200 000.

The heating energy savings achieved as a result of energy efficiency improvements accomplished in the 1770 houses within the framework of the energy efficiency increase programme for multi-apartment buildings amount to 276.1 GWh. Thereby, the national energy efficiency target portion pertaining to multi-apartment buildings is thought to be achieved in the outcome of the implementation of the programme by 2020 (263 GWh).

The estimated launch time of FI implementation is July 2015.

1. Introduction

1.1. Legal framework of *Ex ante* Assessment

There are approximately 1 million dwellings in Latvia, 69% of which are located in multi-apartment buildings. The major part of these buildings is built prior to the restoration of national independence. Characteristic to these buildings is that their structural framework and engineering systems are of a high degree of wear, and their feature is low energy efficiency.

The energy consumed in the buildings (multi-apartment buildings and public buildings) sector accounts for up to 40% consumption on the national energy balance-sheet. Therefore, renovation of multi-apartment buildings and energy efficiency improvement is one of the housing and energy policy goals of the Latvian Government.

In European Union (hereinafter – EU) 2007-2013 programming period Latvia initiated focused implementation of promotional measures to improve the energy efficiency of multi-apartment buildings under the European Regional Development Fund (hereinafter – ERDF) Activity 3.4.4.1 "Measures of improving heat insulation of multi-apartment buildings" (hereinafter – Activity 3.4.4.1). The total public funding available for Activity 3.4.4.1 is EUR 81 299 362, which includes the ERDF funding of EUR 77 916 387 and funding from the national budget (excess commitments funding) of EUR 3 382 975. Since 2009 by 12 February 2015, energy efficiency increase projects 535 houses were completed, with another 324 projects in the implementation stage.

Regardless of the achieved progress, the impact of the accomplished measures to increase the energy efficiency of multi-apartment buildings still is relatively small, compared to the total volume of the multi-apartment buildings segment. Only approximately 6% of multi-apartment buildings in Latvia comply with thermal insulation requirements of buildings established in regulatory enactments of Latvia. Therefore, the Government of Latvia is to proceed with providing aid to improve the energy efficiency of multi-apartment buildings in the EU 2014 – 2020 programming period. The intended form of aid implementation is financial instrument (hereinafter – FI).

The provisions of use of the European structural and investment funds (hereinafter – ESI Funds), including the provisions of FI use in promotional programmes to be implemented during the EU 2014 - 2020 programming period, are defined by Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 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 and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006 (hereinafter – Common Provisions Regulation). The FIs are made as the instruments necessary for a successful implementation of the Common Strategic Framework policy, as well as for attainment of goals of Europe 2020. A European Strategy for Smart, Sustainable, and Inclusive Growth. FIs are an important complementary element to the traditional grant schemes, they complement the experience of applying the financial engineering instruments acquired in the 2007-2013 programming period.

The managing authorities of EU funds may use the FIs for all eleven Common Strategic Framework programmes thematic objectives in the 2014 - 2020 ESI Funds programming period. Therefore the structure of Common Strategic Framework programmes must be aligned with thematic objectives, including thematic objective 4: *"in order to contribute to the Union strategy for smart, sustainable and inclusive growth, as well as the Fund-specific missions pursuant to their Treaty-based objectives, including economic, social and territorial cohesion, each ESI Fund shall support the following thematic objectives: [..] supporting the shift towards a low-carbon economy in all sectors"* [1].

Ex ante assessment has been developed according to all provisions of Article 37 of Common Provisions Regulation regarding the contents of *ex ante* assessment of market failures. Furthermore, in issues where necessary, the assessment also includes other complementary aspects and considerations, pertaining to the topic of the particular assessment. For control purposes, Annex 5 includes *Ex ante* Assessment completeness checklist.

Besides the provisions of the Common Provisions Regulation, the *Ex ante* Assessment has been done in compliance with the *Ex ante* Assessment Methodology – the general methodology, which encompasses all thematic objectives (Volume I), as well as the methodology for thematic objective 4 (Volume IV).

1.2. Goal and scope of *Ex ante* Assessment

According to Article 37 of the Common Provisions Regulation, the goal of *Ex ante* Assessment is to provide objective market analysis, by employing qualitative as well as quantitative research methods, identify and, when feasible, to quantify the existing market failures, suboptimal investment situations, and the necessity for investments into energy efficiency improvement and develop an investment strategy.

This *Ex ante* Assessment refers only to Operational Programme "Growth and Employment" priority axis 4 "Shift towards low-carbon economy in all sectors" investment priority 4.2 "Supporting energy efficiency, smart energy management and use of renewable energy resources in public infrastructure, including the sector of public buildings and housing" specific objective 4.2.1 "Promoting energy efficiency improvement in public and residential buildings" measure 4.2.1.1 "Promoting energy efficiency improvement in residential buildings". *Ex ante* assessment of FI market gaps of other thematic objectives is done in individual reports.

1.3. *Ex ante* Assessment structure

Section 2 of the *Ex ante* Assessment provides background of the current situation, it analyzes the situation in the field, as well as support instruments to improve the energy efficiency of buildings available by now.

Section 1 of the *Ex ante* Assessment analyses the historic experience of implementation of multi-apartment buildings energy efficiency support measures, primarily by employing the ERDF funding for the 2007 – 2013 EU programming period.

Section 3 of the *Ex ante* Assessment includes analysis of market gaps by assessment of the Latvian market demand and supply regarding the increase of energy efficiency of multi-

[1] Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013

apartment buildings. Demand and supply analysis helps to identify particular market gaps and suboptimal investment situations, elimination of which cannot be done without FI intervention in Latvian multi-apartment building renovation and energy efficiency increase financing market. Account of the additional public and private resources raised by the FIs is provided in Section 5 of the *Ex ante* Assessment.

Section 5 of the *Ex ante* Assessment covers FI investment strategy. According to Article 37 (2) (b) of the Common Provisions Regulation, prior to selecting a particular FI, the following must be included in the investment strategy: an assessment of the added value of the financial instruments that are being considered for support from the ESI Funds, consistency with other forms of public intervention addressing the same market, possible State aid implications, the proportionality of the envisaged intervention and measures to minimise market distortion. The major dimensions of the added value are EU funds investment multiplier (leverage effect), financial instrument aid intensity, funds reusability options (revolving fund), ability to address particular market failures, market readiness to employ the offered financial products, availability of sales channels and infrastructure to employ the particular financial instrument and other potential benefits from the financial instrument.

Further, according to Article 37 (2) (e) of the Common Provisions Regulation, the investment strategy provides description of the proposed financial instrument, including the financial products to be offered, target groups of aid recipients and envisaged combination of financial instruments with grant support. The description of the financial instrument also includes implementation model and scheme, additional public and privates resources to be raised and financial instrument management rules based upon the historic experience when implementing similar instruments, correcting market failures and suboptimal investment situations.

Financial instruments are also checked for consistency with other forms of public intervention addressing the same market, and namely, compliance of the proposed financial instrument legal framework for state aid provision and terms for additional assessment and/or notification, in case such is required to confirm the relevance, proportionality, necessity and added value of the state initiatives, minimum market intervention and other state aid implications. This information is included in Section 5.

According to Article 37 (2) (c) of the Common Provisions Regulation, the investment strategy provides estimates multiplier effect to be achieved, i.e., the additional public and private resources to be potentially raised by the financial instrument at the level of fund of funds, financial intermediary, final product or final recipient. An assessment of the need for preferential remuneration will be provided for the financial instruments to be used to attract counterpart resources from private investors to take care for the private investors' willingness to take part in the implementation of the financial instrument. Such preferential remuneration may not cause market distortions, they must be based on the practices and standards employed by the respective markets.

As required by Article 37 (2) (f) of the Common Provisions Regulation to maintain that the structural funds of the 2014 - 2020 EU programming period reach the set targets, specification of the expected results is defined for the financial instruments, and how the financial instrument concerned is expected to contribute to the achievement of the specific objectives set out under the relevant priority including indicators for that contribution. This information is included in Section 8.

The proposed indicators are based on the result and the outcome indicators of the Operational Programme "Growth and Employment" thematic objective 4 "Supporting the shift towards a low-carbon economy in all sectors" investment priority 4.2 "Supporting energy efficiency, smart energy management and use of renewable energy resources in public infrastructure, including the sector of public buildings and housing" specific objective 4.2.1 "Promoting energy efficiency improvement in public and residential buildings". Section 8 also provides the envisaged outcome and result indicators calculation methodology.

According to Article 37 (2) (f) and (g) of the Common Provisions Regulation, Section 8 describes the general reporting and monitoring terms, which will ensure effective monitoring of the proposed FI, enhance compliance with the appropriate reporting requirements and establish systems, which will allow promptly react to divergences from the investment strategy and the terms of financing, agreed upon between the funding recipient (designated authority, cooperating body, managing authority) and financial intermediaries (credit institutions).

To maintain a comprehensive approach for the attainment of envisaged objectives, FI implementation milestones schedule is included in Section 8. The milestones schedule includes all respective activities and tasks, as well as interim dates. It will serve as a general process management instrument for all institutions involved to follow the completion performance of the envisaged tasks. It is of critical importance to have FI implemented within the estimated terms and to solve the urgent market needs, thus taking care of heritability of the 2007 – 2013 EU programming period's energy efficiency increase of multi-apartment buildings investment implementation mechanism.

Terms of the proposed financial instruments, which includes amounts, time periods, provisions of aid to business, expected results, outcome and performance indicators and their target values, the proposed milestones schedule and interim dates are indicatively provided in Section 8 and can be changed depending on not anticipated procedures or notifications to the European Commission (hereinafter – EC) to check the compliance of the proposed financial instruments with the requirements of EU funds regulations and the legal framework of aid to business.

1.4. *Ex ante* Assessment updating

In line with Article 37 (2) (g) of the Common Provisions Regulation, the Ex ante Assessment includes *"provisions allowing for the ex ante assessment to be reviewed and updated as required during the implementation of any financial instrument which has been implemented based upon such assessment, where during the implementation phase, the managing authority considers that the ex ante assessment may no longer accurately represent the market conditions existing at the time of implementation".*

Hence, the designated authority (Ministry of Economics, hereinafter – the MoE) will be obliged to evaluate minimum once a year whether the *ex ante* assessment reflects the current market conditions accurately enough. The Ex ante Assessment updating description is provided in Section 9.

2. Background

2.1. Peculiarities of Latvian multi-apartment buildings and their energy efficiency

The energy consumed in the buildings sector accounts for up to 40% of the entire national energy balance-sheet, therefore the buildings sector has a considerable potential in achievement of overall energy efficiency targets of Latvia. The energy resources consumption of the major part of buildings at their present state is high, and they have considerably lower thermo-technical properties than those that can be achieved by technologies available today. As the majority of these buildings are going to be operated yet for a considerable period of time, gradual renovation of these buildings by improving their energy efficiency is a pending matter.

2.1.1. Technical and energy efficiency characteristics of the residential resources pool

Buildings statistics

1.35 million buildings are registered in the National Real Estate Cadastre Information System (hereinafter – NREC IS), with a total area of 198 million m^2, incl. various types of ancillary buildings. Of the total number of buildings, energy in approximately 400 thousand buildings is used for conditioning the interior premises (they are heated), of which 352.4 thousands of the total area of 86.9 million square metres are residential buildings. The largest number – 85% is single apartment buildings (300.7 thousands), although by area, the proportion of single apartment buildings is only 39%, and the largest proportion – 58% - comprises multi-apartment (three and more apartments) buildings (50.4 million m^2), although their quantity is just 11% (38.6 thousands).

Tales 1 and 2 reflect the breakdown of buildings by number of floors and periods of construction (NREC IS singles out buildings with wooden exterior walls). The most numerous are wooden buildings constructed by year 1941, while the largest proportion by the living floor space comprise 3-5 storey buildings built from 1961 to 1992

Table 1 Multi-apartment buildings by number of floors (buildings with wooden exterior walls singled out), quantity.

	By 1941	1941-1960	1961-1979	1980-1992	1993-2002	After 2003	Total
with wooden exterior walls	8 332	1 421	440	59	17	8	**10 277**
1–2 floors	5 244	2 818	2 998	605	57	62	**11 784**
3–5 floors	2 514	903	5 294	3 373	226	196	**12 506**
6 and more floors	496	22	514	854	62	100	**2 048**
other							**1 985**
TOTAL							**38 600**

Source: Assessment Authors

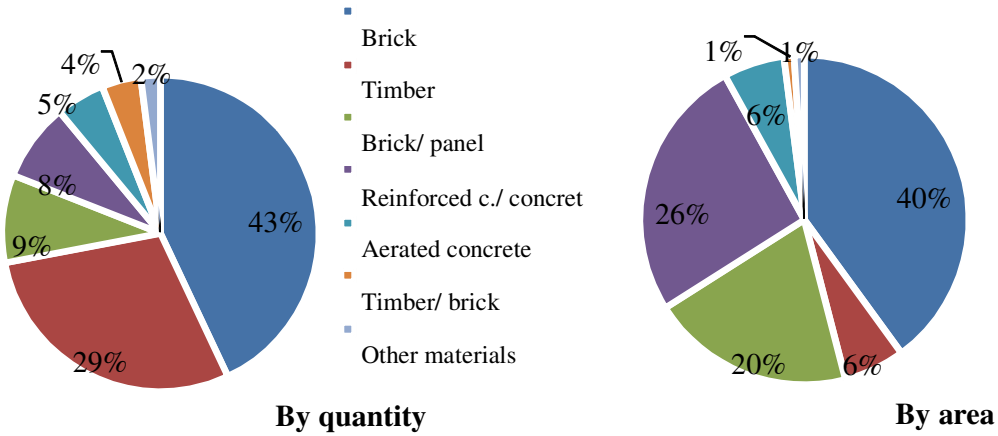
Table 2 Multi-apartment buildings by number of floors (buildings with wooden exterior walls singled out), million m^2.

	By 1941	1941-1960	1961-1979	1980-1992	1993-2002	After 2003	Total
with wooden exterior walls	2.29	0.33	0.11	0.017	0.004	0.005	**2.76**
1–2 floors	1.84	1.12	1.53	0.43	0.042	0.042	**5.00**
3–5 floors	2.98	1.50	14.13	9.27	0.53	0.56	**28.97**
6 and more floors	1.38	0.11	2.67	4.71	0.34	0.58	**9.80**
other							**3.87**

Total							**50.40**

Source: Assessment Authors

By material of exterior walls, the largest proportions both by quantity and by area are brick wall buildings (43% by quantity, 40% by area). The second largest group – 29% of the number of residential buildings, is that of wooden buildings, while by area 26% it is reinforced concrete/concrete buildings and 20% – brick/panel buildings (see Picture 1).



Picture 1 Multi-apartment buildings registered in NREC IS by quantity and area depending on the material of exterior walls.

Source: Assessment Authors

Energy efficiency of buildings

The sector of current buildings by thermo-technical characteristics can be split into the following periods:

by 1940	Housing of pre-war time, primarily of timber in rural areas, and brick wall – in urban areas. The majority of buildings are up to two floors.
1941 – 1960	Post-war housing, good quality is characteristic for this period, buildings are predominantly of brick, the characteristic feature for the residential sector are brick buildings built according to standard-type designs of Stalin's era.
1961 – 1979	Massive and expansive standard-type construction, projects of 316 and 318 series design were launched in the residential buildings sector (so-called Khrushchyovkas), 464 series, then also construction of buildings of 467, 103 and 104 series, at the end of the period – of 602 series design. Exterior walls widely used clay brick, aerated concrete, clay lightweight concrete.

1980 – 1991 New requirements in construction design were defined in the USSR construction standard Thermal Resistance of Building Envelopes[2]. Launched construction of buildings of 119 series design, and implemented a range of individual design projects, reinforced concrete slabs and clay lightweight concrete blocks dominate in construction.

1992 – 2002 Standard-type construction of buildings has actually stopped. Order No68 of the Latvian Architecture and Construction Ministry of 12 September 1991 considerably raised the requirements for building envelopes.

2003. – 2013 Latvian Construction Standard (hereinafter – LBN) 002-001[3] Thermal Resistance of Building Envelopes came to effect in year 2003, establishing thermo-technical requirements for building envelopes. This is the period when buildings featuring large glass surfaces emerge, for this reason LBN requirements are not met in the respective buildings, on the other hand, dominant use of glass surfaces in building architecture is not characteristic in the residential buildings sector.

since 2014 New thermal resistance requirements for building envelopes have come to effect according to LBN 002-001. Buildings in Latvia are constructed having increased requirements to energy efficiency parameters.

A new Construction law comes to effect as well as related construction standards, resulting in changes in the construction process, incl. for reconstruction and renovation projects.

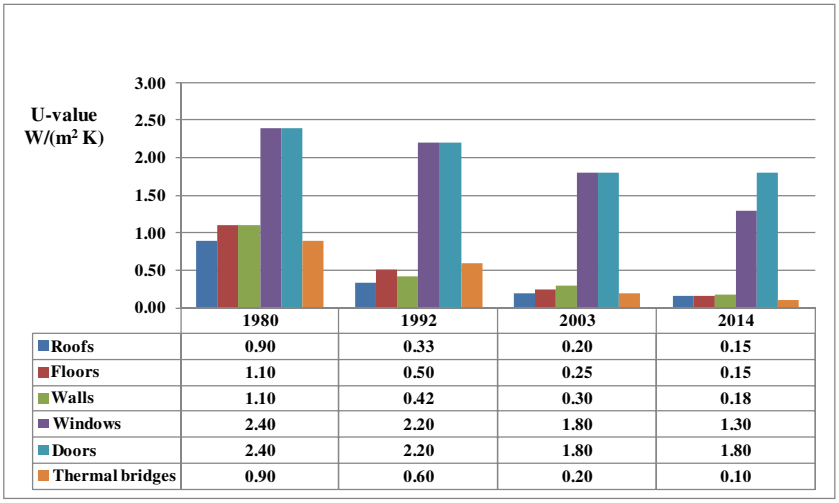
Changes in thermo-technical regulatory requirements to building envelopes since 1979 are specified in Table 3, and comparison of some requirements is provided in Picture 2.

Table 3 Regulatory values of heat transfer coefficients U for building envelopes of residential buildings and energy consumption for heating in buildings constructed in line with the regulatory requirements.

Structural elements		**1980**	**1992**	**2003**	**2014**
Roofs and spans exposed to air outside	***W/ (m²·K)***	0.90	0.25 – 0.40	0.2 k*	0.15 k
Floors on ground		-	0.5	0.25 k	0.15 k
Exterior walls of mass less than 100 kg/m²		1.1	0.33 – 0.50	0.25 k	0.18 k
Exterior walls of mass 100 kg/m² and more				0.3 k	0.18 k
Windows, doors		2.4	1.9 – 2.4	1.8 k	1.3 - 1.8 k
Thermal bridges		-	-	0.2 k	0.10 k
Temperature factor **k = 19/($T_{in.}$ – Tout.), depending on the climatic zone, **k** for residential buildings ranges from 0.95 (in Liepāja) to 1.09 (in Alūksne)*					

Source: Assessment Authors

[2] „СНиП II-3-79 Строительная теплотехника" (thermal resistance in construction), СНиП II-3-79 2. Теплоустойчивость ограждающих конструкций (Part 2 – Thermal resistance of building envelopes).
[3] Cabinet Regulation No 495 Regulations Regarding Latvian Construction Standard LBN 002-01 Thermotechnics of Building Envelopes, adopted 27 November 2001.

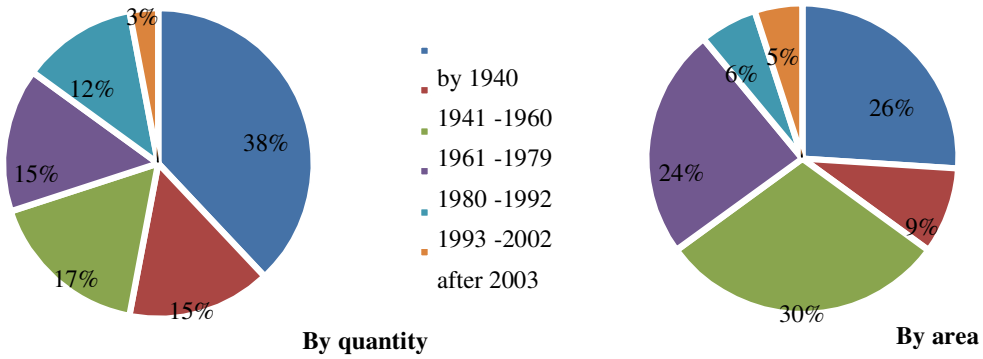


	1980	1992	2003	2014
Roofs	0.90	0.33	0.20	0.15
Floors	1.10	0.50	0.25	0.15
Walls	1.10	0.42	0.30	0.18
Windows	2.40	2.20	1.80	1.30
Doors	2.40	2.20	1.80	1.80
Thermal bridges	0.90	0.60	0.20	0.10

Picture 2 Changes in thermo-technical regulatory requirements to building envelopes since 1979.

Source: Assessment Authors

Only 3% by quantity and 5% by area there are buildings that are built after year 2003, and which can be regarded as conforming to the currently effective thermo-technical requirements (see Picture 3). Only slightly lower thermo-technical properties have the buildings, which were built from 1993 to 2002. Although, it should be noted that compliance with the regulatory thermo-technical requirements not always is achieved due to poor construction performance quality, as well as errors made in construction designs.



Picture 3 Multi-apartment buildings by quantity and area depending on the construction period

Source: Report Authors, based on the NREC IS data

Of buildings constructed earlier, conforming to the currently effective thermo-technical requirements should be buildings, which are fully reconstructed or renovated after 2003. Having considered the Central Statistics Bureau (hereinafter – CSB) data of the number of granted construction permits for reconstruction of residential buildings, we conclude that 2-3% single apartment houses and 1-2% two and more apartment houses have been renovated since 2003.

Energy consumption

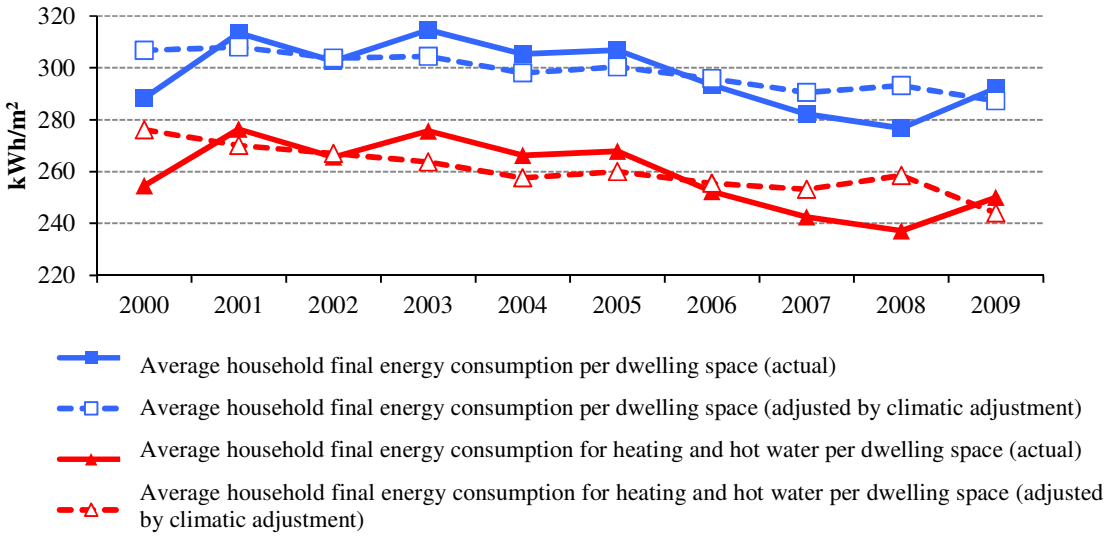
Changes in final energy consumption levels of residential buildings sector since 2000 are provided in Picture 4. Based on the CSB data on energy consumption and the area of the residential resources pool in 2009, the households' final energy consumption figures were calculated and provided in the text below.

The average consumption for heating and hot water per dwelling space:

- Actually – 250 kWh/m^2.
- Adjusted by climatic adjustment – 244 kWh/m^2.

The average consumption for heating per dwelling space:

- Actually – 197 kWh/m^2.
- Adjusted by climatic adjustment – 193 kWh/m^2.



Picture 4 Households' energy consumption per dwelling space (kWh/m^2 per annum)

Source: Report Authors

Although statistical data imply a tendency of energy consumption indicators to reduce, it is clear that reduction rate is insufficient for attainment of targets set in Latvian policy planning documents. Therefore additional stimuli are necessary in order to enhance energy efficiency improvement of the residential resources pool.

2.1.2. Possession status and ownership aspects of residential resources pool

Structure of dwelling types and possession status of residential resources pool

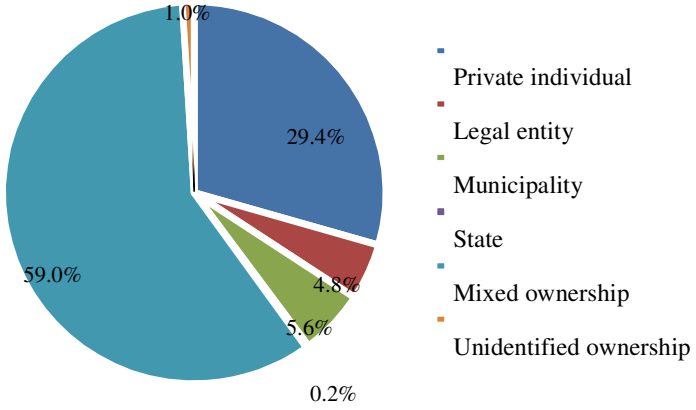
Having a look at the number of residential buildings by their possession status, according to NREC IS data, in January 2011 the major part of houses – 303 thousands (86.1%) were owned by private individuals, 25.6 thousands (7.2%) of residential buildings – to owners of various status (mixed-type possession status), 7.7 thousands (2.2%) – to legal entities, 5.4 (1.5%) thousands – to municipalities, 0.37 thousands (0.1%) – to the state, and for 10.2 thousands of buildings (2.9%) the possession status was not identified (see Table 4).

Table 4 Residential buildings by possession status, quantity

Owner / Residential building type	Private individual	Legal entity	Municipality	State	Mixed-type possession status	Possession status not identified	Total
Single apartment	**282 380**	5 257	2 447	163	832	9 617	300 696
Two apartments	9 440	427	407	12	1 919	160	12 365
Three or more apartments	11 348	1 846	2 170	73	22 780	382	38 599
Various social groups	79	150	325	125	14	13	706
Total	**303 247**	**7 680**	**5 349**	**373**	**25 545**	**10 172**	**352 366**

Source: Report Authors, based on the NREC IS data

In the multi-apartment buildings sector, the largest proportion – 59.0% comprises buildings of mixed possession status, 29.4% are owned by private individuals, 5.6% – by municipalities, 4.8% by legal entities and 0.2% – by the state, and the possession status of 1.0% of buildings was not identified (see Picture 5).



Picture 5 Multi-apartment houses by possession status

Source: Report Authors, based on the NREC IS data

Ownership aspects

When considering the options of energy efficiency increase in the residential buildings sector, its technical condition is but one aspect to look at, another aspect that may not be disregarded is ownership, which considerably affects the decision making regarding thermal insulation of a particular building.

Basically, there are two types of apartment owners:

- Families, dwelling in apartments of the particular multi-apartment building
- Legal entities using the non-residential areas of multi-apartment buildings.

Besides the aforementioned apartment owners, property ownership rights may also belong to credit institutions that have obtained them via mortgage dispossession.

Analysis of the results of the quantitative survey of Latvian building managers done by the MoE in December 2014 and January 2015 revealed that 53 of 116 multi-apartment buildings managed by respondents have non-residential areas. Non-residential areas are situated in 519 (7%) of 7879 buildings managed by respondents. Companies occupying these areas primarily operate in retail, public catering, consumer services and health care industries (shops, cafes, hairdressing saloons, drugstores, dentist practices, etc.).

By property ownership, multi-apartment buildings can be split into two groups:

- Residential buildings that are a single real estate.
- Residential buildings divided in apartments, which are not a single real estate.

Residential building, which is single real estate, can belong to one person, exercising complete power over it. In such case, the building owner is entitled to make decision regarding energy efficiency measures in the house on his own account. But, in most cases a residential building, which is single real estate, belongs to a number of persons on the basis of joint ownership. Therefore then the decision of performing energy efficiency measures must be made by unanimous agreement of all joint owners. This requirement makes such decision making a lot more difficult as even in the case when the majority of joint owners are willing to implement energy efficiency measures, they cannot be done without the consent of other joint owners.

By splitting a residential building into separate apartment properties, the residential building no longer exists as a single real estate. Apartment owners hold titles to the apartment properties established as a result of residential building division (include the apartment and deemed part of the joint ownership property). The rights and obligations of apartment owners, as well as the number of votes required for decision making are defined by the Law on Residential Property. According to Section 17 Paragraph 9 of this Law, apartment owners representing more than a half of all apartment properties are required to vote “for” in order to make a decision on tasking the manager to perform certain residential building management activities. According to Section 6 Paragraph 3 of the Law on Administration of Residential Houses, renovation of multi-apartment buildings is classified as a management activity (other management activities), whereby apartment owners representing more than a half of all apartment properties are required to vote “for” in order to make a decision on renovation, as well as authorising someone to implement the renovation project.

Also, Section 13 Paragraph 2 of the Law on Residential Property defines apartment owner’s duties concerning covering the residential building management expenditure. According to this requirement, apartment owner, in accordance with the amount of deemed part of joint ownership property that belongs to his apartment, is required to cover the expenditure, specified on the basis of a decision of the community of apartment owners, arising from performance of other residential building management activities, which ensure improvement and development of the residential house, leading to optimized house management costs, and concern taking measures leading to reduced expense for services pertaining to the use of apartment (i.e., applying also to energy efficiency increase measures, which are aimed at house improvement and which are not defined as mandatory by regulatory enactments).

Having revised the legal framework for decision making in residential houses divided in apartments, we conclude that it enables the majority of apartment owners to improve their residential building, also protecting the minority, as it imposes obligation to cover only such expenses, which contribute to optimal formation of house’s management costs.

The term "society of apartment owners" (hereinafter – SoAO) is used to denote a community of apartment owners, which, for purposes of administration and/or management of the building have registered a legal entity. Hereinafter in the text the terms SoAO will be used to denote a community of apartment owners registered in any legal form.

Society of apartment owners can be registered in the following legal forms:

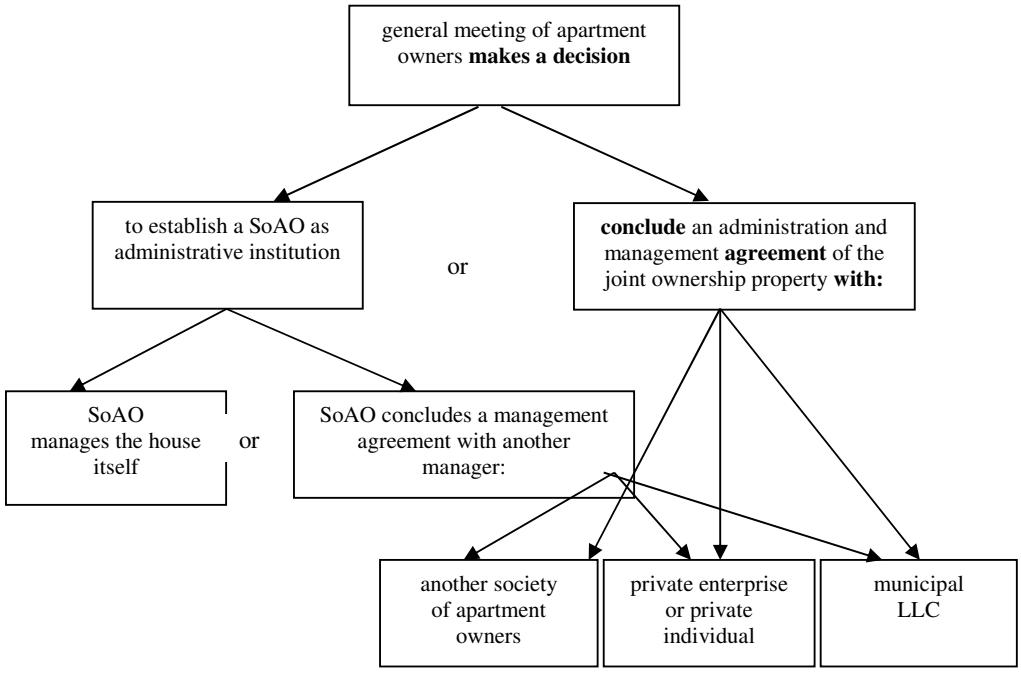
- Association (to be registered in the Associations and Foundations Register).
- Cooperative society (to be registered in the Commercial Register).
- Limited Liability Company (to be registered in the Commercial Register).

According to the Associations and Foundations Law[4], *association of apartment owners* is a voluntary union of persons, founded to achieve the goal specified in the articles of association, which does not have a profit-making nature. Association is a legal entity, and achieves this status as of the moment when it is entered in the Associations and Foundations Register of the Latvian Register of Enterprises.

According to the Cooperative Societies Law[5], apartment owners also may establish a *cooperative society of apartment owners* (hereinafter – CSoAO). Unlike with association, a cooperative society can administrate not only its own house, but other houses outside this association as well.

Such an association can administrate and manage a residential building on their own. But, it can also delegate these functions on a contractual basis to other individuals or legal entities. For instance, by appointing a contracted manager to organize the buildings management.

A schematic structure of various potential options for apartment property management according to Latvian regulatory enactments is provided in Picture 6.



Picture 6 Administration and management of the joint ownership property of apartments

[4] Associations and Foundations Law; http://likumi.lv/doc.php?id=81050
[5] Cooperative Societies Law; http://likumi.lv/doc.php?id=47009

Source: Assessment Authors, based on the Latvian regulatory enactments

Implementation of energy efficiency increase projects at this moment is hampered by the factor that administration rights of the majority of residential buildings released for privatization are not assumed by apartment owners. It means that apartment owners themselves yet do not take part in decision making and the houses instead of apartment owners are run by a manager selected by municipality.

Section 51 of the Law on Privatisation of State and Municipal Residential Houses[6] states that "In order to establish a society of apartment owners or to enter into a mutual contract regarding administration and management of the joint property part of a residential house in accordance with the procedures specified in the Civil Law, a general meeting of apartment owners of the residential house shall be convened not later than within a time period of six months from the time when a decision regarding the commencement of privatisation of the relevant residential house has been taken". Although, the law does not define penalties to apartment owners, which fail to meet this requirement.

SoAO has still not been established in a considerable portion of multi-apartment buildings and they are run by managers. This situation is most frequent in Riga City, where LLC Rīgas Namu Pārvaldnieks manages approximately 38% of the residential resources pool. According to the information provided by LLC Rīgas Namu Pārvaldnieks only 140 SoAOs in Riga City had taken over the multi-apartment building administration rights in December 2014 (of a total of 4590 buildings managed by LLC Rīgas Namu Pārvaldnieks).

Apartment property administration procedure and the choice of available alternatives to improve the energy efficiency of multi-apartment buildings directly affect the financial instrument's operating opportunities and efficiency in the 2014 - 2020 EU programming period.

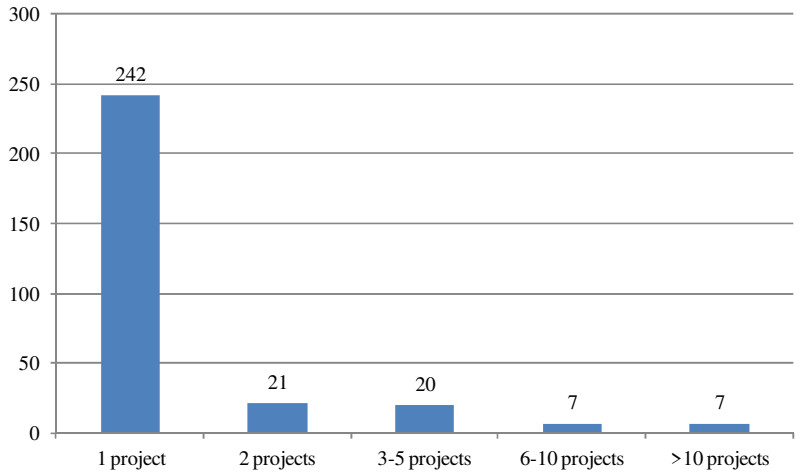
According to regulatory enactments regulating Activity 3.4.4.1[7] (for additional information see Section 2.3.1.1), the project submitter, for purposes of the activity, is multi-apartment building apartment owners, and the project application is submitted by them via an authorized person. Decision regarding authorization has to be made in a general meeting of apartment owners. Project submitters may authorize private individuals as well as legal entities.

The MoE's Register of Residential Building Managers includes a total of 615 personas, engaged in administration of residential buildings or willing to engage. 236 (38%) of them are private individuals, 191 (31%) – enterprises and 188 (31%) – associations.

Analysis of the number of completed projects under Activity 3.4.4.1 (by 12 February 2015, 535 projects were completed) reveals that the majority of project submitters (242) have implemented 1 project, 21 – 2 projects, 20 – 3-5 projects, 7 – 6-10 projects, and 7 – more than 10 projects (see Picture 7).

[6] Law on Privatisation of State and Municipal Residential Houses; http://likumi.lv/doc.php?id=35770.

[7] Cabinet Regulation No 138 of 10 February 2009 Regulation of project application selection stages one to eight under the activity "Measures of improving heat insulation of multi-apartment buildings", complement 3.4.4.1 to the Operational Programme "Infrastructure and Services"; http://likumi.lv/doc.php?id=188595;
Cabinet Regulation No 272 of 5 April 2011 Regulation of project application selection stages nine to ten under the activity "Measures of improving heat insulation of multi-apartment buildings", complement 3.4.4.1 to the Operational Programme "Infrastructure and Services"; http://likumi.lv/doc.php?id=228846;
Cabinet Regulation No 284 of 28 May 2013 Regulation of project application selection stages eleven and further under the activity "Measures of improving heat insulation of multi-apartment buildings", complement 3.4.4.1 to the Operational Programme "Infrastructure and Services"; http://likumi.lv/doc.php?id=257081.



Picture 7 Project submitters by the number of completed projects within the framework of Activity 3.4.4.1

Remark: The total amount of completed projects is 535 as at 12 February 2015.

Source: Assessment Authors

Project submitters, which have implemented the largest number of projects, can be seen in Table 5.

Table 5 Project submitters with the largest number of completed projects within the framework of Activity 3.4.4.1

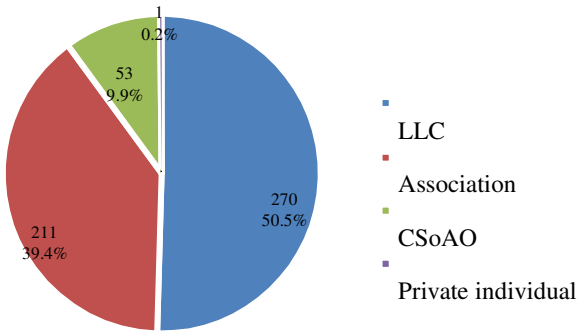
Project submitters	Number of completed projects
LLC Ventspils nekustamie īpašumi (Ventspils city)	29
LLC Valmieras namsaimnieks (Valmiera city)	27
LLC Namsaimnieks (Limbaži municipality)	18
LLC Ozolnieku KSDU (Ozolnieki municipality)	15
LLC Namu serviss APSE (Liepāja city)	13
LLC InvEsco (Cēsis city, Sigulda town, Rīga city, Salaspils town, Ādaži town)	11
LLC Liepājas namu apsaimniekotājs (Liepāja city)	11
CSoAO Bāka-NK (Ventspils city)	10
LLC CDzP (Cēsis city)	10
LLC Saimniecība 24 (Valmiera city)	9
LLC Talsu namsaimnieks (Talsu municipality)	9
LLC Smiltenes NKUP (Smiltenes municipality)	7
LLC Jelgavas nekustamā īpašuma pārvalde (Jelgava city)	6
LLC Alūksnes nami (Alūksne municipality)	6
CSoAO Bāka-2 (Rīga city)	5
LLC Vilkme (Ropaži municipality)	5
LLC Latvijas namsaimnieks (Ādaži town, Rīga city)	4
LLC Grobiņas novada namsaimnieks (Grobiņa municipality)	4
LLC ADAX 2 (Talsi municipality)	4
LLC JK namu pārvalde (Jēkabpils city)	4
14 project submitters	3
21 project submitter	2
242 project submitters	1
Total 297 project submitters	**535**

Remark: Information as at 12 February 2015.

Source: Assessment Authors

Data of Table 5 indicate that among 20 most active project implementers only 2 are CSoAOs, while all the rest are LLCs.

Of projects completed within the framework Activity 3.4.4.1, 50.5% have been implemented by house managers that are LLCs, 39.4% – by associations founded by apartment owners, 9.9% – by CSoAOs, and 0.2% – by private individuals (see Picture 8).



Picture 8 Projects completed within the framework Activity 3.4.4.1 by the legal form of submitters

Remark: The total amount of completed projects is 535 as at 12 February 2015.

Source: Assessment Authors

The information above indicates that at this moment in Latvia, apartment owners use various apartment property management forms, which is a significant burden to the implementation of energy efficiency projects.[8]

2.2. Targets of Latvia in the field of energy efficiency

For purposes to improve the EU industrial competitiveness globally, one of the priorities of EU policies is improvement of energy efficiency. The EC communication Europe 2020: A European Strategy for Smart, Sustainable, and Inclusive Growth defines the EU energy efficiency target: achieve 20% savings from the EU primary energy consumption by 2020. Having regard for these EU energy efficiency targets and the fact that the energy consumed in the buildings sector comprises 40% of the entire Latvian energy balance-sheet, targets for energy efficiency are defined in Latvian policy planning documents as well.

National level medium term planning document **Latvian National Development Plan 2014-2020** (hereinafter – NDP 2020)[9], which is closely related to **Sustainable Development Strategy of Latvia until 2030**[10] and **National Reform Programme for implementation of**

[8] The Ministry of Economics' informative report On Building Renovation Funding Options
[9] Latvian National Development Plan 2014-2020
[10] Sustainable Development Strategy of Latvia until 2030

EU2020 strategy (hereinafter – NRP)[11], includes the strategic objective "Energy Efficiency and Energy Production", as well as target completion benchmark regarding the energy efficiency of national economy – to reduce energy consumption, to contribute to Gross Domestic Product, from 0.37 toe/1000EUR (in 2010) to 0.28 toe/1000EUR (in 2020). The following measures have to be accomplished within the period of time until 2020: [202] Energy efficiency programmes in national and municipal public buildings sector; [203] Promotional programmes to energy efficiency of residential buildings and shift to renewable energy resources; [204] Aid to innovative energy and energy efficiency technologies projects.

Measures [205] and [206] encompass aid to shift to technologies using renewable energy resources, which along that would contribute also to energy efficiency improvement in heating production and transmission, as well as transportation. Paragraphs [24] and [25] in the vision section of NDP 2020 emphasize the shift towards systematic energy efficiency improvement in production, services, housing and public buildings sectors, as well as implementation of innovative solutions - low energy buildings and smart networks.

The total funding required for attainment of targets specified in NDP 2020 strategic objective "Energy Efficiency and Energy Production" is EUR 1 239 179.06. Also, NDP 2020 strategic objective "Highly Productive Manufacturing and Internationally Competitive Services with Export Potential" includes measure [126] Support to manufacturing businesses and service providers towards improving energy efficiency (funding EUR 38 417 538.89). The strategic objective "Sustainable Management of Natural and Cultural Capital" includes the following measures: measure [438] Promote the sustainable use and biological diversity of land and other natural resources through the application of environmental conservation technologies, which inter alia would be applicable to improvement of the efficiency of energy resources and the energy obtained from them; measures [439] Wider supply of energy-efficient and ecological goods and services in public procurement ("Green public procurement"), which aims at increasing the role of the public sector as a leader by example with respect to energy efficiency.

Having assessed the EU legislation adopted since 2006 and commitments of Latvia established therein, the NDP 2020, as well as energy efficiency measure implementation experience, we conclude that the current policies and targets need to be updated.

The MoE-developed policy planning document **"Informative Report Long-Term Energy Strategy of Latvia 2030 - Competitive Energy for the Society"**[12] aims to develop new energy policy guidelines for the 2014 – 2020 period. National priority status is going to be made assigned to the energy efficiency increasing – as a cost-efficient way of mitigating risks of economy energy supply security, sustainability and competitiveness, meanwhile creating new jobs and fostering growth.

The NRP adopted in 2011 sets a target to achieve primary energy savings of 0.670 Million tonne of oil equivalent (hereinafter – Mtoe) (including transformation sector) in 2020 compared to 2008. The key policy directions and measures for energy efficiency increase: thermal insulation of housing, energy efficiency improvement in public and production buildings, implementation of effective lighting infrastructure in public territories of

[11] Latvian National Reform Programme for implementation of EU 2020 strategy
[12] Informative Report Long-Term Energy Strategy of Latvia 2030 - Competitive Energy for the Society; http://85.254.134.201/images/modules/items/EMZino_210213_STRAT.doc.

municipalities, energy efficiency improvement in heating energy production, energy efficiency improvement in transport sector.

As defined by the Government, the portion of the indicative energy efficiency target under NRP that refers to multi-apartment buildings to be attained by 2020 is **0.023 Mtoe (263 GWh)**.

NRP's energy efficiency targets and policy directions are set having in mind the **"Second National Energy Efficiency Action Plan of Latvia 2011 - 2013"**[13] (hereinafter – II NEEAPL) approved in 2011, defining further activities for the attainment of the energy efficiency target of 2020. The Informative report of 17 March 2014 "On the progress towards the indicative national energy efficiency targets in 2014 – 2016 in line with Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directive 2009/125/EC and 2010/30/EU and repealing 2004/8/EC and 2006/32/EC" (hereinafter – Informative report) indicates that the Latvian national indicative energy efficiency target, established in line with the requirements of Article 3 of Directive 2012/27/EU, based on the primary energy savings in 2020, is 0.670 Mtoe (28 PJ), which equals to final energy consumption savings of 0.457 Mtoe (19 PJ).

The Informative report produces a summary of the achieved energy savings by adhering to the course towards the indicative energy savings target established to the state by Directive 2006/32/EC[14], as well as target established by Directive 2012/27/EU. The Informative report also defines energy efficiency increase measures for the period until 2016, including those energy efficiency increase measures for which, until 2013, funding was available from EU funds programmes, as well as from the Climate Change Financial Instrument (hereinafter – CCFI) programme. The MoE (the Responsible Authority) in cooperation with the Latvian Investment and Development Agency (hereinafter – LIAA) (the Cooperation Institution) in year 2015 proceeds with implementing energy efficiency promoting measures within the framework of the Operational Programme "Infrastructure and Services":

- Activity 3.4.4.1 "Measures of improving heat insulation of multi-apartment buildings"; the total available funding from the ERDF is EUR 77.9 million, as well as excess commitments funding of EUR 3.3 million.
- Activity 3.4.4.2 "Thermal resistance improvement measures in social residential buildings"; the total available funding from the ERDF is EUR 6.9 million.
- Sub-activity 3.5.2.1.1 "Measures of improving the efficiency of centralized heating supply systems"; the total available funding from the Cohesion fund (hereinafter – CF) is EUR 78.73 million.[15]

2.3. Former and current energy efficiency support instruments

On the level of individual pilot projects, provision of support to energy efficiency assessment of buildings and implementation of measures was started at the second half of nineties of the previous century. Initiatives of various kinds, implemented by national and municipal

[13] Second National Energy Efficiency Action Plan of Latvia 2011 - 2013; http://polsis.mk.gov.lv/view.do?id=3754
[14] Directive 2006/32/EC on energy end-use efficiency and energy services and repealing Council Directive 93/76/EEC
[15] Concept of introducing the requirements of Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC into national legislation; http://polsis.mk.gov.lv/view.do?id=4572.

institutions, usually were implemented within the framework of intergovernmental agreements or bilateral agreements with foreign partners on programme implementation.

As one of the first should be mentioned a pilot project, which was implemented based on the cooperation agreement between the Ministry of Environmental Protection and Regional Development (hereinafter – MEPRD) and the Senate Department for Urban Development of Berlin concluded in 1999. This cooperation after two years on 28 February 2001 resulted in presentation of a pilot project "Energy Initiative Riga" – renovation of one 9 storey multi-apartment building of 602 series design of the total apartment area of 4000 m^2 at 46/3 Ozolciema Street, Riga City.

Within the period of time from 2004 to 2005, energy efficiency renovation projects in a number of houses were implemented: one in Riga City (of 464 series) and four in Brocēni (all of 103 series), which were implemented under an inter-ministry agreement, concluded by the Latvian Ministry of Environment and the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety of the Federal Republic of Germany regarding implementation of the pilot project "Initiative of energy saving improvements in residential buildings".

These pilot projects were a good example, and as a result of them, a number of municipalities eagerly engaged in improvement of energy efficiency measures of buildings in their territories. With support provided by municipalities, projects have been implemented in Riga, Valmiera, Jelgava, and other cities.

Use of financial instruments on a national economy level for improvement of energy efficiency of buildings has been started relatively recently, since the availability of financial funds from the EU funds and within the framework of Kyoto Protocol for greenhouse gas emissions.[16]

2.3.1. European Union funds

Within the framework of the 2007-2013 EU programming period's Operational Programme "Infrastructure and Services" complement 3.4.4 measure "Housing Energy Efficiency", the MoE manages two activities, implementation of which is handled by the LIAA (until May 2010, the activities were implemented by the dissolved State Agency for Construction, Energy and Housing):

- 3.4.4.1 Measures of improving heat insulation of multi-apartment buildings.
- 3.4.4.2 Thermal resistance improvement measures in social residential buildings

2.3.1.1. European Regional Development Fund's Activity 3.4.4.1 "Measures of improving heat insulation of multi-apartment buildings"

Support to improve the energy efficiency of multi-apartment houses within the framework of Activity 3.4.4.1 is being provided since 2009. The target of this activity is housing energy efficiency improvement in multi-apartment buildings to take care of sustainability of the residential resources pool and efficient consumption of energy resources. Implementation of the activity is handled by the Responsible Authority (MoE) and the cooperating body (LIAA). Depending on low-income apartment owners proportion in a house, it can receive for

[16] Informative report of the Ministry of Economics "On building renovation funding options"; http://tap.mk.gov.lv/mk/tap/?pid=40267991.

renovation the ERDF grants of 50% up to 60% of the eligible costs of the renovation project, not exceeding EUR 50 of the ERDF funding per one square metre of the building's total area. The total public funding available for Activity 3.4.4.1 is EUR 81 299 362, incl. the ERDF funding of EUR 77 916 387 and funding from the national budget (excess commitments funding) EUR 3 382 975 (Section 3.1 provides a detailed description of Activity 3.4.4.1).

2.3.1.2. European Regional Development Fund's Activity 3.4.4.2 "Thermal resistance improvement measures in social residential buildings"

The ERDF Activity 3.4.4.2 "Thermal resistance improvement measures in social residential buildings" was launched in May 2008. Project applications were accepted and considered until April 2010, and implementation of nearly all projects is complete at this moment. The goal of the activity is to increase the energy efficiency of the municipal social residential resources pool, meanwhile improving its quality and sustainability and furnishing socially vulnerable person groups with an acceptable dwelling. Project applications to funding could be submitted regarding social residential buildings, which were municipal property and which by a municipality decision had been assigned the status of social residential building. Funding was granted for preparing project documentation, supervision of project's construction process by a construction supervisor or the author, for reduction of building's energy consumption, as well as for renovation or reconstruction of the building (incl., when necessary, adjustment for persons with functional disorders). The heating energy consumption economy after the renovation or reconstruction work is accomplished must be minimum 20%.

The maximum permissible ERDF funding intensity under the Activity is defined as 75% of the total eligible costs of the project. The maximum permissible volume of ERDF funding for a single project application under the Activity is EUR 200 000. The ERDF funding available under the Activity is EUR 6.9 million.

55 projects have been approved within the framework of the Activity, and projections are that approximately 50% of social houses belonging to municipalities will be renovated after their completion (54 are completed by 10 January 2015).

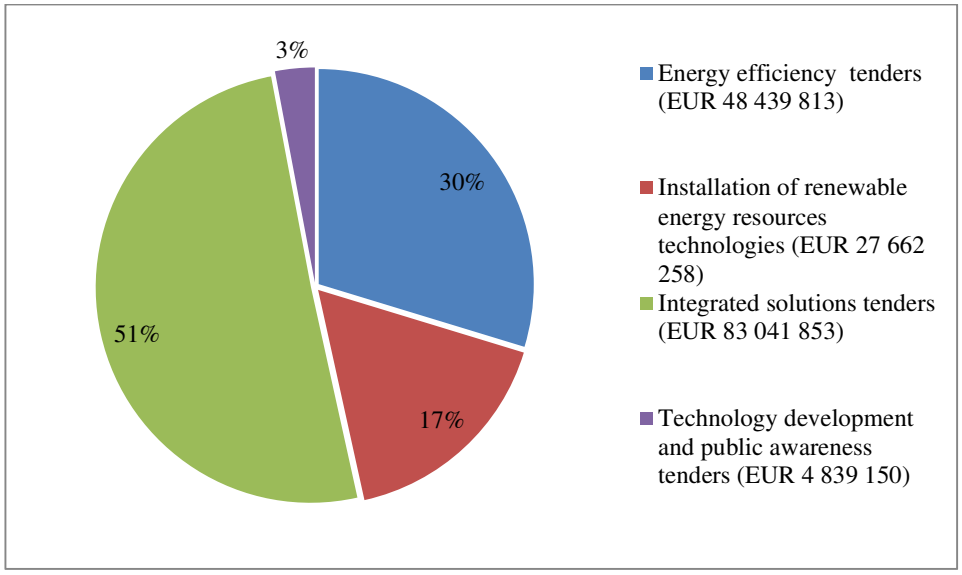
2.3.2. Climate Change Financial Instrument

At the disposal of the CCFI are funds obtained by selling the greenhouse gas emission units owned by the state according to the procedure defined in Article 17 of the Kyoto Protocol to the United Nations Framework Convention on Climate Change, and which are channelled for elimination of climatic changes in accordance with the principles and priorities established in the Law on Participation of the Republic of Latvia in the Flexible Mechanisms of the Kyoto Protocol.

The aim of CCFI is to prevent global climate change, adaptation to the effects of climate change and contribute the reduction of greenhouse gas emissions (for example, implementing activities to improve the energy performance of buildings in both public and private sectors, the development and implementation of technologies that use renewable energy resources, as well as the implementation of the integrated solutions to reduce greenhouse gas emissions). The Ministry of Environmental Protection and Regional Development is handling the CCFI budget programme.

The CCFI funding is redistributed in accordance with protocol decisions of the Cabinet of Ministers (hereinafter – Cabinet) and used by organizing project tenders in accordance with the approved Cabinet regulations.

The breakdown of the total granted CCFI funding according to concluded agreements on various climatic change elimination measures indicates that funding primarily was granted to implementation of integrated solutions.



Picture 9 CCFI funding by CCFI tender areas

Source: Assessment Authors

Picture 9 demonstrates that according to the granted and reallotted funding among CCFI tenders, 51% of the available CCFI funding (EUR 83 041 853) has been granted to project implementation in tenders having integrated solutions, i.e., support is at the same time provided to implementation of building energy efficiency measures and installation of renewable energy resource technologies. 30% of the available CCFI funding (EUR 48 439 813) was granted to project implementation in tenders supporting energy efficiency measures. 17% of the available CCFI funding (EUR 27 662 258) was granted to project implementation in tenders aimed at transferring from technologies relying of the use of fossil energy resources to technologies using renewable energy resources. 3% of the available CCFI funding (EUR 4 839 150) was granted to project implementation in tenders aimed at development of technologies and raising the public awareness.[17]

In 2009, project implementation was started in one CCFI-financed tender. By the end of 2014, project implementation was started in 24 tenders financed by the CCFI.

A report on the progress of funding use in CCFI-financed tenders is provided in Table 6.

Table 6 CCFI project tenders implemented in buildings sector

#	Tender title	Available CCFI funding (EUR)	Completed projects	Being implemented
CCFI-1	Energy efficiency improvement in municipal buildings	31 400 442.91	56	0
CCFI-3	Energy efficiency improvement in buildings of	6 759 719.72	13	0

[17] The informative report of the Ministry of Environmental Protection and Regional Development "Operation of Climate Change Financial Instrument in 2013"

	higher education establishments			
CCFI-5	Integrated solutions to reduce greenhouse gas emissions in national and municipal buildings of professional education establishments	13 182 901.92	23	0
CCFI-6	Integrated solutions to reduce greenhouse gas emissions in production buildings	9 004 690.35	39	0
CCFI-7	Integrated solutions to reduce greenhouse gas emissions in municipal buildings	19 113 450.93	37	2
CCFI-10	Low energy buildings	3 389 10467	10	4
	Total:	**84 283 46734**	**178**	**6**

Source: Assessment Authors

Comparing the investment efficiency of Activity 3.4.4.1 and CCFI projects, we conclude that Activity 3.4.4.1 has achieved, per invested financial unit, both larger energy economy (kWh/EUR per annum), as well as CO_2 reduction (kgCO_2/EUR per annum). In Activity 3.4.4.1, the minimum required savings indicator ratio to co-funding 0.751 kg CO_2/EUR per year is considerably higher than the minimum outcome indicator to co-funding of 0.50 kg CO_2/EUR per annum required in the CCFI energy efficiency tenders. In the CCFI tender "Energy efficiency improvement in buildings of higher education establishments", where the minimum savings indicator is established as 0.50 kg CO_2/EUR per annum, the average indicator ratio to the **total** funding 0.6 kg CO_2/EUR per year is lower than in the Activity 3.4.4.1, where the average indicator ratio to the **total** funding is 0.620 kg CO_2/EUR per annum. Other CCFI projects are integrated solutions, therefore Activity 3.4.4.1 is comparable only to CCFI's energy efficiency increase measures.

The CCFI integrated solution project tenders are not comparable to the MoE's energy efficiency programmes, as these programmes encompass installation of gadgets, producing energy from renewable energy resources, and they should be making a larger savings to funding ratio, but 0.620 kg CO_2/EUR – the savings indicator to the **total** funding ratio in Activity 3.4.4.1 is larger than the savings indicator ratio to the total funding in the CCFI tender "Integrated solutions to reduce greenhouse gas emissions in national and municipal buildings of professional education establishments", which is 0.539 kg CO_2/EUR.[18]

2.3.3. European territorial cooperation and EU level programmes

The aim of European territorial cooperation is to reinforce cross-border cooperation by means of joint local and regional initiatives, transnational cooperation by means of activities contributing to integrated territorial development in line with EU priorities, as well as interregional cooperation and experience exchange on the respective territorial level.

European territorial cooperation programmes are financed by funds of the ERDF and European Neighbourhood and Partnership Instrument (hereinafter – ENPI). The responsible body for implementation of European territorial cooperation goals in Latvia is the MEPRD.

The following programmes will be implemented within the framework of ESI funds objective "European territorial cooperation" 2014-2020 with the ERDF support:

- Latvia – Lithuania cross-border cooperation programme
- Estonia – Latvia cross-border cooperation programme
- Cross-border cooperation programme for the Central Baltic Sea Region

[18] Informative report of the Ministry of Economics "On building renovation funding options"; http://tap.mk.gov.lv/mk/tap/?pid=40267991.

- Baltic Sea Region transnational cooperation programme
- INTERREG EUROPE programme for the Pan-European Union territory
- Urban development programme URBACT III
- ESPON 2020 programme (European Observation Network for Territorial Development and Cohesion)

And, by support of the European Neighbourhood Instrument, the ones listed below will be implemented:

- Latvia – Lithuania – Belarus programme
- Latvia – Russia programme

Projects within the framework of programmes can be submitted by representatives of national, municipal, regional and local institutions, as well as non-governmental sector representatives. Project partners in the 2014 - 2020 programming period can also be enterprises the engagement of which in projects is not business related. The supported project areas are environmental protection, development of cultural and natural heritage objects, optimization of transport network, social integration, improvement of public governance services efficiency, support to SME growth, promoting innovations, etc.

For instance, regional policy and programme implementation improvement is also going to be supported within the framework of the interregional cooperation Programme INTERREG EUROPE strategic objective "Low-Carbon Economy". Projects are aimed at enhancing experience exchange and policy learning among regional participants.

URBACTIII programme will be implemented focusing on know-how exchange and learning on issues from five thematic objectives, to be allocated the major share (70%) of the programme's resources:

- Promotion of research, technologies development and innovation
- Supporting low-carbon economy across all sectors
- Environmental protection and promotion of efficient use of resources
- Promotion of social inclusion and eradicating poverty
- Promotion of employment and workforce mobility

The largest EU level research and innovations programme is Horizon 2020 (H2020), which is a new, broad-scale research and innovations programme combining previously implemented framework programme 7, "Intelligent Energy Europe" programme, as well as Innovations Programme. The budget of H2020 for the period 2014-2020 is close to EUR 80 billion and it is going to support projects in 18 various fields, announcing project tenders each year. For instance, in 2014, of 456 project applications submitted to H2020, 56 were granted funding. Representatives of Latvia are involved in the implementation of 5 projects, and 3 another projects are included on the reserve list.

One of the support fields is "Secure, Clean and Efficient Energy" with funding of EUR 5.9 billion for 2014-2020; within this field, projects can get support in 2015 in the following segments:

a) Energy efficiency (EUR 101 million):

- Buildings and consumers

- Heating and cooling
- Production industry and products
- Sustainable projects financing

b) Low carbon technologies (EUR 377 million)

c) Smart cities and communities (EUR 107 million)

Supported projects within the framework of H2020 are ones like research, systems and document development, etc., not including, e.g., investment costs in construction. In the case of "Secure, Clean and Efficient Energy", it would be projects demonstrating benefits of energy efficiency, improve the understanding of these measures and raise the awareness of them. Depending on the support segment, projects can be submitted on a single country scale as well as by engaging representatives of a number of countries. Project submitters often are municipal and non-governmental sector organizations, project participants are also public governance institutions. Project submitters may receive co-funding of 70% or 100% from the EC. Projects are assessed by looking at their qualities such as excellence and uniqueness, their potential benefits on the EU scale, as well as expected implementation quality and efficiency.

2.3.4. European Economic Area and Norwegian Financial instrument

The goal of the European Economic Area (hereinafter – EEA) and Norwegian Financial Instrument is to contribute to the reduction of economic and social disparities within the EEA and to strengthen the bilateral relations between donor states and the beneficiary state.

According to agreement between the EC and donor states (Norway, Iceland and Lichtenstein) about allocation of the financial assistance for the implementation of the EEA financial Instrument and Norwegian Financial Instrument in 2009 – 2014 programming period, the funding granted to Latvia is EUR 72.95 million, which is by approximately 30% more than in the previous financial instrument programming period in 2004 – 2009.

Within the framework of EEA Financial Instrument and Norwegian Financial Instrument regarding issues considered in this *Ex-ante* Assessment, Norwegian Financial Instrument 2009 – 2014 programme "Green Industry Innovation" is available in Latvia. The programme is aimed at increasing the competitiveness of "green" entrepreneurs, including the competitiveness of current entrepreneurs, "green" innovations and "green" businesses. The total amount of support of the programme is EUR 12.6 million, providing support to three activities:

a) Pre-defined project "Green Technologies Incubator", started operation on 1 July 2014.

b) "Small Grant Scheme", whereby entrepreneurs receive support from the "Green Technologies Incubator" in the form of subsidized services according to incubation funds.

c) Open tender "Support to Implementation of Green Technologies in Industry" (hereinafter – open tender).

The aim of open tender is to enhance implementation of new technologies and products of a reduced environmental footprint in industry in such segments as designing environment-friendly and energy effective materials and products for buildings and structures, clean transportation, management of water resources, waste management, ecodesign and other

product-, technologies- or process-related improvements, which contribute to efficient use of energy and renewable energy resources, reduction of emissions and smaller resource consumption.

2 selection rounds have been held within the framework of the open tender for the total available funding of EUR 7.8 million, and the funding was available for procurement of new equipment, research activities, know-how handover, etc. The aid available for a single project was EUR 170 000 – 700 000 and the maximum aid intensity 45%. Three projects have been approved by now, where the business plans are to develop new cement-concrete material, carry out industrial waste water neutralization and recovery of sulphuric acid for production of "green" products, and development of a household waste bags production line. The second round of the open tender was finished on 16 January 2015. Programme's project implementation period will last until 30 April 2016.

2.3.5. Municipal budget funding

Section 27^2 Paragraph 2 Clause 4 of the Law on Assistance in Solving Apartment Matters[19] states that one of the purposes for which a municipality may provide assistance to an owner (owners) of a residential house or an apartment by granting funding, is for the performance of energy-efficiency measures in the residential house.

According to information consolidated by the MoE on the granted municipal assistance in renovation, restoration of a residential building and land plot improvement within a period between 2009 and 2013, assistance for performance of energy efficiency measures in a residential house has been received by 741 residential building in 39 municipalities for a total municipal funding of EUR 6.2 million (see Table 7).[20]

Table 7 Assistance provided by municipalities for improvement of energy efficiency of residential buildings from 2009 through 2013

Year	Number of residential buildings	Amount (EUR)
2013	160	950 647.02
2012	169	2 024 532.52
2011	97	1 950 785.84
2010	57	885 287.01
2009	258	450 644.85
Total	**741**	**6 261 897.23**

Source: Assessment Authors

The largest assistance to owners of residential buildings for carrying out energy efficiency measures have provided the cities of Ventspils (EUR 99 636), Daugavpils (EUR 1 175 620) and Riga (EUR 445 310). Liepāja City was active in granting aid for energy efficiency improvement, but with Activity 3.4.4.1 launched, the provision of support from the municipal budget was stopped (see Table 8).

[19] Law on Assistance in Solving Apartment Matters; http://likumi.lv/doc.php?id=56812.
[20] The official website of the Ministry of Economy: **reports on municipal a**ssistance in solving apartment matters**;** https://em.gov.lv/lv/nozares_politika/majokli/petijumi__statistika/.

Table 8 The most active municipalities having provided support to residential buildings for energy efficiency improvement between 2009 and 2013

	2009		2010		2011		2012		2013		Total	
Municipality	**Qty of houses**	**Amount, EUR**	**Qty of houses**	**Amount, EUR**	**Qty of houses**	**Amount, EUR**	**Qty of houses**	**Amount, EUR**	**Qty of houses**	**Amount, EUR**	**Qty of houses**	**Amount, EUR**
Ventspils City	92	37 305	16	14 129	25	12 052	19	16 009	20	20 141	172	99 636
Daugavpils City	93	48 267	7	3 640	10	56 156	17	557 503	13	510 055	140	1 175 620
Riga City	0	0	0	0	2	427 482	70	12 790	30	5 038	102	445 310
Liepāja City	47	265 955	4	11 404	0	0	0	0	0	0	51	277 359
Tukums municipality	16	44 547	15	50 149	14	35 572	0	0	0	0	45	130 268
Nereta municipality	2	822	6	4 956	7	5 736	0	0	25	7 278	40	18 792
Ogre municipality	7	31 951	4	37 229	5	14 411	2	20 509	13	12 824	31	116 925
Saldus municipality	0	0	0	0	5	14 229	9	44 806	11	53 267	25	112 302
Burtnieki municipality	0	0	0	0	7	19 920	7	17 786	8	22 766	22	60 472

Source: Assessment Authors, based on data provided by municipalities

According to Section 27.[2] Paragraph 2 Clause 4 of the Law on Assistance in Solving Apartment Matters[21], assistance of municipality can be provided for preparation of technical documentation for building's renovation, as well as construction. For example, Riga City is active in providing assistance in buildings' energy audit development, financing 80% of this document's preparation costs.[22] Daugavpils City has developed a promotional programme for energy efficiency increase measures in multi-apartment houses by providing municipal funding of 60% of the renovation project costs.[23]

[21] Law on Assistance in Solving Apartment Matters; http://likumi.lv/doc.php?id=56812.
[22] Riga City Council mandatory regulations No 47 "Regarding procedure how the municipality of Riga City provides assistance in carrying out energy efficiency measures in residential buildings" of 24 September 2013; http://m.likumi.lv/doc.php?id=261668.
[23] The official website of the National Regional Development Agency; https://www.latvija.lv/lv/PPK/dzivesvieta/buvnieciba/p1570/ProcesaApraksts.

3. Current experience analysis

3.1. Experience in the 2007 – 2013 European Union programming period

For the 2007 – 2013 EU programming period under Activity 3.4.4.1 "Measures of improving heat insulation of multi-apartment buildings", 1440 project applications were received of a total requested public funding of EUR 1275 million, which by 56% exceeds the available public funding (EUR 81.3 million).

According to the information provided by the MoE, implementation of 535 projects was completed by 12 February 2015 using the ERDF funding of EUR 43.4 million and agreements are concluded on implementation of yet another 324 projects using the ERDF funding of EUR 32 million. By 12 February 2015, the amount of the ERDF funding disbursed to funding recipients was EUR 43 million, or 53% of the total available public funding.

Key provisions for implementation of Activity 3.4.4.1

A building may qualify to support under this activity when it matches the following requirements:

- Its construction was started prior to 1993 and it was released for operation by 2002.
- It is split into apartment properties, and one owner does not own more than 20% of the total amount of apartments (this limitation does not apply to apartments belonging to the state or municipality).
- Building's non-residential areas do not exceed 25% of the buildings total floor space.

Energy efficiency indicators to be attained by renovation projects implemented under Activity 3.4.4.1:

- Minimum heating energy savings of 20%.
- Heating energy consumption for heating after renovation may not exceed 100 kWh/m^2 per year (when the building has three or more floors) or 120 kWh/m^2 per year (when the building has one or two floors).

Funding under Activity 3.4.4.1 is granted:

- For construction operations in joint ownership property shares of a multi-apartment building of apartment owners, which includes renovation or replacement of windows in exterior walls within the confines of some apartments, conducting the renovation of the structural elements of the building as stated in the technical project or simplified renovation documentation and accomplishing the energy efficiency improvement measures specified in building's energy audit report.
- For preparation of the project documentation and project supervision of the construction process by a construction supervisor or the author.

The following costs items will be eligible under Activity 3.4.4.1:

a) Energy audit, technical survey, construction costs estimate, construction design or simplified renovation documentation development costs and technical project expertise costs.

b) Project expenses for supervision of the construction process by a construction supervisor or the author.

c) Construction costs in a multi-apartment house:

- Thermal insulation and replacement of building envelopes which includes renovation or replacement of windows in exterior walls within the confines of some apartments.
- Thermal insulation of basement and overhead ceiling covering.
- Repair of the stair-well, if energy efficiency improvement activities include the stair-well, without exceeding five per cent of total eligible project costs.
- Renovation or reconstruction of heating supply and hot water dispensing system, except for installation, renovation or reconstruction of heating energy and hot water production sources.
- Installation, renovation or reconstruction of the ventilation system.
- Renovation of functionally indivisible elements appurtenant to the residential building operation, which is included in the technical project or simplified renovation documentation, if it ensures sustainability of energy efficiency measures, or heating energy economy is achieved after implementation of the measure.
- Installation of a recuperation system in the building for reuse of heating energy, if at least one of the measures indicated in item c) is implemented and the ratio of the heating energy savings achieved as a result of installing the system (MWh/yr) to the ERDF funding (thousands EUR) invested in system installation is 1.4 or larger.
- Recessing the building's utility lines from the surface to be insulated, if required for application of heat insulation materials on building envelope surfaces and is included in the technical project or simplified renovation documentation.
- Contingent expenses reserve, which may be used for costs referred to in item c), without exceeding five per cent of the total of costs referred to in items a), b) and c).
- VAT to eligible project costs, if the project submitter cannot recover it according to tax legislation.

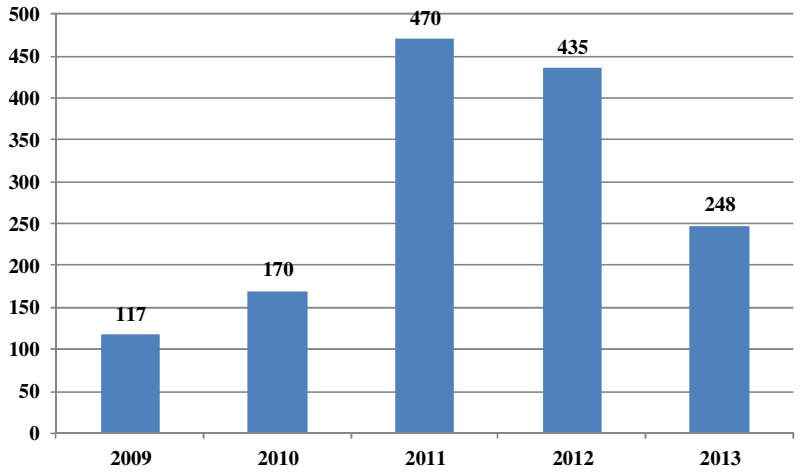
Construction costs are regarded as eligible, when:

- Construction warranty period has been insured for a sum insured to a minimum of two years since the object is released, or a maintenance bond has been issued to the construction warranty period.
- Construction operations have been monitored by a construction supervisor.
- Construction operations are in conformance with the construction design's technical project stage or simplified renovation documentation and construction legislation requirements.

The total amount of the eligible costs specified in items a) and b) above may not exceed 10 per cent of total eligible project costs.

Implementation progress of Activity 3.4.4.1

1440 project applications have been submitted since the activity was launched on 14 April 2009 until 31 July 2013. Although initially the quantity of submitted projects under Activity 3.4.4.1 was not large – 117 projects in 2009, then in 2011 already the number of submitted projects was four times larger – 470 (see Picture 10).



Picture 10 Quantity of submitted projects in Activity 3.4.4.1 by year since 2009 through 2013

Remark: The total amount of submitted projects under Activity 3.4.4.1 is 1 440.

Source: Assessment Authors

The increase in the quantity of project applications is related to the successful coordinating activities regarding the implementation of Activity 3.4.4.1 by the MoE, which encompassed:

- Legislation changes. Legislation changes primarily concerned expanding the range of eligibility, simplification of administrative procedures and solving problems related to technical documentation of renovation and construction quality control.
- Provision of methodology assistance to individuals in the form of organizing seminars and other informative activities about issues like making use of EU funds, as well as such specific issues as construction procurement, apartment rights, drafting sample documents, developing an informative booklet "Building Renovation Step By Step", as well as other activities concerning of providing information to individuals.
- Cooperation with the non-governmental sector, incl. the cooperation memorandum regarding establishment of effective and frank cooperation concluded within the framework of the informative campaign "Live Warmer" in 2010 (the memorandum was signed by 31 organization). Cooperation with the non-governmental sector encompasses all parties involved in the renovation process – residential building managers, builders, producers of construction materials, commercial banks, insurers and industry experts.

Until 12 February 2015, implementation of 535 energy efficiency increase projects have been completed within the framework of Activity 3.4.4.1 for a total investment volume of EUR 100 million – the ERDF funding of EUR 43.4 million and private co-funding EUR 57.44 million. Yet another 324 projects of a total funding of EUR 78.42 million (ERDF funding EUR 32.08 million and private co-funding EUR 46.32 million) are being implemented (see Table 9).

Table 9 Number of projects implemented and being implemented within the framework Activity 3.4.4.1 and their funding in 2007-2013 European Union programming period as at 12 February 2015

Project status	Number of projects	ERDF funding (EUR)	Private eligible funding (EUR)	Non-eligible costs (EUR)	Total investments (EUR)[24]
Completed	535	43 409 986.06	42 734 817.16	14 719 052.26	100 863 855.48
Being implemented	324	32 085 922.34	33 626 718.84	12 710 245.3	78 422 886.48
TOTAL	**859**	**75 495 908.40**	**76 361 536.00**	**27 429 297.56**	**179 286 741.96**

Source: Assessment Authors

Since the launch of Activity 3.4.4.1, the most active users of the EU funds aid for renovation of residential buildings are inhabitants of Kurzeme region. The current estimates are that more than a total of 250 renovation projects are going to be implemented in Kurzeme region. A large number of renovated buildings can be expected also in Riga region (195 projects) and Vidzeme (183 projects). Least active to use the chance to improve their house's energy efficiency have been multi-apartment building owners in Riga City and in Latgale (see Table 10).

Table 10 Number of projects implemented and being implemented within the framework Activity 3.4.4.1 by region as at 12 February 2015

Project status	Kurzeme	Riga region	Vidzeme	Zemgale	Riga	Latgale	Total
Completed	157	117	131	73	34	23	**535**
Being implemented	98	78	52	49	36	11	**324**
Total	**255**	**195**	**183**	**122**	**70**	**34**	**859**

Source: Assessment Authors

According to data provided in Table 11, the largest number of renovate buildings in Kurzeme (181 projects) will be generated by projects implemented in cities of Liepāja and Ventspils. Whereas, by the ratio to the total number of buildings in city, the largest proportion of residential resource pool renovated by employing EU funds within the framework of Activity 3.4.4.1 will be in Valmiera. Regardless of Riga's huge potential in renovation of buildings, by now its inhabitants have been inactive in using the aid provided by EU funds and municipality.

Table 11 Proportion of renovated buildings within the framework of Activity 3.4.4.1 and their ratio to the total quantity of residential buildings in most active municipalities as at 12 February 2015

Project status	Riga	Valmiera	Liepāja	Ventspils	Cēsis
Completed	34	50	72	43	18
Being implemented	36	11	48	18	13
Total	70	61	120	61	31
Buildings, total (State Land Service data)	11 913	453	2 117	828	432
Insulated of the total number of buildings, %	**0.59%**	**13.47%**	**5.67%**	**7.37%**	**7.18%**

Source: Assessment Authors

Guarantees to the multi-apartment buildings' energy efficiency increase projects implemented within the framework of Activity 3.4.4.1

In addition to grant funding from the EU funds, guarantees to granting loans are available with the Latvian Guarantee Agency (hereinafter – LGA) to the projects for increasing energy efficiency of multi-apartment buildings. Such additional support to the implementers of

[24] ERDF funding and private funding.

projects under Activity 3.4.4.1 is necessary to promote more efficient use of funding in Activity 3.4.4.1, and to obtain the necessary security for loans to multi-apartment housing thermal insulation. There was a situation at the end of 2012, when commercial banks refused to grant loans for implementation of renovation projects concerning multi-apartment buildings thermal insulation, as they were regarded high risk projects, and commercial banks refused to finance them without guarantees provided by LGA. The Association of Commercial Banks of Latvia indicated that the highly risky nature of projects is due to the fact that energy efficiency projects are long-term projects, with the average investment payback periods from 10 and more years (commercial banks find projects of investment payback periods from 5 to 7 years as acceptable), furthermore, with economic indicators considered, a range of territories of Latvia are not creditworthy at all, from the viewpoint of commercial banks.

The procedure of granting guarantees is defined by the Cabinet regulations No 997 of 26 October 2010 "Regulations regarding guarantees for improving the competitiveness of entrepreneurs and conforming agricultural service co-operative societies". Guarantees can be received by persons authorized by community of apartment owners of a multi-apartment building, handling project implementation under Activity 3.4.4.1. The authorized person must hold the status of legal entity, and it cannot run business within the framework of the project. Guarantees are secured by the LGA funding.

Guarantee covers up to 80% of the loan amount, the amount guaranteed to a single authorized person does not exceed EUR 1 500 000, and guarantee term does not exceed 10 years. Guarantees annual premium rate is 0.65% of the guaranteed amount balance. The procedure of granting guarantees, disbursement of indemnities and loss mitigation measures are defined according to civil agreements, concluded between LGA and credit institutions.

According to the LGA, the LGA had granted 37 guarantees in 2013 and 96 loan guarantees in 2014 to three credit institutions for lending to multi-apartment buildings with the average annual interest rate 4.45% in 2014.

3.2. Positive and negative experience from lessons learned

Considering that in the 2007-2013 EU programming period this was the first time that aid of such a broad scope was provided for improvement of energy efficiency in multi-apartment buildings, significant lessons in this field were learned by all involved parties – state agencies in charge of the implementation of Activity 3.4.4.1, apartment owners and construction industry representatives.

Positive experience

1) The significance of the increase of energy efficiency in buildings was brought to the foreground with the launch of the 2007-2013 EU programming period, therefore by that time the public awareness of these issues was low. Emergence of good practice samples can be regarded a significant factor in explaining and popularizing these issues.
2) Growing public interest and understanding of buildings' energy efficiency improvement, which was achieved by unique until now informative campaign "Live

Warmer", which brought together all the parties involved in implementation of energy efficiency increase measures.[25]

3) Industry (builders, construction material manufacturers, traders) interest in implementation of energy efficiency increase measures.
4) New energy-effective technologies and construction material development tendencies to improve the energy efficiency.
5) Improvement of quality of energy audits, technical projects and other documents and experience exchange regarding implementation of energy efficiency projects.
6) Engagement of new specialists, as the volumes of business in construction design and construction fields go up.
7) Development of construction industry in the energy efficiency increase direction.
8) Improvement of building management mechanisms, along with recovery activities of buildings and their energy efficiency improvement.
9) Improvement of the technical condition of buildings, the comfort of inhabitants and the surrounding environment on the course of energy efficiency project implementation.
10) Large energy resource saving potential in multi-apartment buildings sector.

Negative experience

1) Unclear energy efficiency increase projects investment payback term. According to the MoE estimates, at average values, the investment payback period in energy efficiency increase projects is 22-23 years (not taking into account funding acquisition costs). LIAA approved a project in a promotional programme of the 2007 – 2013 EU programming period, and only afterwards the commercial bank considered loan granting options. Thus, it was not clear before whether the project will pay off, as the loan interest rate was not known.
2) High funds acquisition costs (loan interest rates) with commercial banks.
3) Limited availability of funding by commercial banks for some groups of buildings having economically justified projects (in non-urban regions, buildings of a small number of apartments, building managers with a relatively large loan portfolio).
4) For a large share of energy efficiency increase in multi-apartment buildings projects, LGA provided guarantees are demanded by commercial banks that they granted loans. Meanwhile they only on rare occasions help to get loans to building groups described in the above paragraph, thus not enhancing lending throughout the entire territory of Latvia (guarantees given by the LGA were guarantees given by a state-owned enterprise, not the state).
5) Debts of apartment owners for utility services and loan liabilities for dwelling acquisition, which limits their ability to take up new commitments by getting a loan with a bank.
6) Insufficient number of professionally trained specialists (house managers, energy auditors, designers, construction workers).
7) Lack of qualified workforce to perform construction work.

[25] The official website of the Ministry of Economics, https://em.gov.lv/lv/es_fondi/dzivo_siltak/

8) Poor quality of construction work and lack of construction quality control.
9) In cases of engaging energy service companies (hereinafter – ESCo), cash flows of apartment owners unclear – not clear service price, and in cases if the heating energy tariff change risk is assumed by apartment owners, there is a risk of costs going up due to the potential changes in heating energy tariffs (such a risk in projects implemented by ESCos (compared to projects implemented by house managers) is higher, as apartment owners after the project implementation pay for heating energy consumption as it was prior to the implementation of energy efficiency increase project .
10) Activity 3.4.4.1 implementation mechanism has created a disincentive bureaucratic burden:
    - Ineffective procurement procedure and its supervision – procurement pre-examination, agreement amendments, etc.
    - Limited LIAA supervisory rights (opportunities to react to violations only by means of not paying for work already accomplished, although the commissioning party has already accepted them and paid for them).

3.3. Other countries experience analysis

Analysing the experience of other countries, loan with a grant element has been widely selected as a type of aid that is sustainable and cost-efficient to individuals. This is the experience in Lithuania, Estonia and Germany.

3.3.1. Lithuanian experience

Support to improve the energy efficiency of multi-apartment buildings has been provided by Lithuanian state institutions in various forms. The support was started to be granted in 2006 by providing grants from the national budget funds up to 50% of the multi-apartment building energy efficiency increase project costs. Although the programme was successful as seen from the house owners' prospective, national budget funds were exhausted as soon as the end of 2007.

Loans

Taking into account their historic experience, Lithuanian institutions implemented the support programme to multi-apartment building energy efficiency increase measures in the 2007-2013 EU programming period in the form of financial instrument. In the middle of 2009, Lithuanian institutions signed a cooperation agreement with the European Investment Bank (hereinafter – EIB) on establishment of an investment fund of the European Union specific aid instrument - Joint European Support for Sustainable Investment in City Areas (hereinafter – JESSICA) of EUR 227 million (EUR 127 million from the ERDF and EUR 100 million from national budget funds). The support mechanism was arranged as provision of a subsidized loan to multi-apartment building owners. In order to market the support product, procurements of financial intermediaries (commercial banks) for JESSICA were organized, establishing an individual urban development fund with each of the financial intermediaries.

Loans had a 3% fixed interest rate with the repayment period up to 20 years. Financial intermediaries were entitled to request a down payment on a loan from apartment owners, which could not exceed 5% of the project value.

Starting the implementation of the programme, commercial banks concluded loan agreements with the owner of each apartment. The authorized persons were in charge of concluding agreements with commercial bank (on behalf of apartment owners), preparation of projects, conducting procurements and project implementation. According to such an agreement conclusion procedure, each apartment owner repaid the loan to the commercial bank by individual payment.

As such loan agreement conclusion procedure was complicated, then, as of July 2012, loan agreements with a commercial bank could sign the authorized person in its own name, specifying apartment owners as the project's final beneficiaries. In the case of such agreements, the authorized person each month collected payments of apartment owners on the loan and repaid the loan principal and interest payments to the commercial bank. Loan was bound to the particular apartment, not the owner.

At the beginning of 2013, Lithuanian legislation changed, offering an alternative to implement energy efficiency increase projects on the level of cities or regions. This implementation mechanism provided that loan agreements with commercial bank could be concluded not only by apartment owners and their authorized persons, but municipal institutions as well. To do so, municipality in its territory selected buildings of the lowest energy efficiency (two lists of buildings were made for the programme, where energy efficiency activities were to be performed primarily).

First list:

- Could include buildings with heating energy consumption over 150 kWh/m2 per annum.
- Buildings could not be cultural and historic monuments.
- Buildings had to be built prior to 1993.

Criteria were not that strict for the second list:

- Buildings with at least 10 apartments could be entered for the programme.
- Buildings heating energy consumption had to be larger than on average in other buildings in the municipality.
- Debts of apartment owners could not exceed 10% of the amounts billed.

Municipality, when making the lists of buildings, evaluated the heating energy savings implications of buildings to be renovated on the centralized heating supply and appointed a project administrator, who could be:

- Buildings manager
- Municipal non-profit organization
- Municipal institution

Project administrator implemented a project and organized loan repayment to commercial bank just as the authorized persons of apartment owners did.

Grants

In addition to a low interest rate loan, the following state aid was offered:

- Grant for project preparation work and project administration up to 100% of costs (national budget funding).
- Grant for the achieved energy efficiency level up to 40% of project costs (grants of 15% of the loan value were covered from EU funds, provided 20% energy efficiency was achieved; and an additional 25% grant, financed from CCFI funds, if the achieved heating energy economy was at least 40%).
- Grant to low-income persons, covering 100% project costs (funding from the national budget).

Supervision

In programme implementation, the project control and supervision functions were shared between commercial banks and the Housing and Energy Economy Agency (state agency "Būsto energijos taupymo agentūra"). For instance, visual inspection of the technical documentation and construction work of energy efficiency project was done by the agency. Also, this agency managed aid components financed from the national budget. Other tasks related to loan granting and supervision were performed by commercial banks.

Main lessons learned

Combination of loans and grants is of great importance. On the other hand, establishment of the investment fund and procurement of financial intermediaries is very time consuming: since the conclusion of the agreement with EIB on JESSICA investment fund establishment until the loan product got marketed, 1.5 years passed. Lithuanian colleagues had to make particular effort to informative education of the public to assure of the efficiency of support mechanism in the form of loan, because before this programme, support had been provided only in the form of grants.

3.3.2. Estonian experience

Estonia support to improve housing energy efficiency is provided by a state-owned company Estonian Credit and the Export Guarantees Fund (hereinafter – KredEx).

Loans

In the 2007-2013 EU programming period, the programme envisaged granting loans via bank, financing them from the Revolving Fund. The Fund's composition of contributions was as follows:

- ERDF funding EUR 17.7 million (25% of the fund).
- KredEx funding EUR 9.5 million (13% of the fund).
- loan of the Council of Europe Development Bank (hereinafter – CEB) of EUR 288 million (40% of the fund).
- Estonian Government loan of EUR 16 million (22% of the fund).

Commercial banks did not invest their funding in granting of these loans. When marketing the product, KredEx cooperated with two commercial banks on the basis of a cooperation agreement, without a public procurement procedure. A requirement was made to apartment

owners – to provide at least 15% own funding (grant, own funds or loan on commercial terms) of the project value.

Loan interest rate was 3.5% (as of 2013) – 4.5% (before 2013), fixed for 10 years (public resources were lent to commercial banks at a 2% annual rate, bank's margin was 1.5 – 2.5%). The loan repayment term in the programme could reach 20 years, although in the reality loans are to be repaid on average within 15 years.

To be granted a loan for the project, buildings of up to 2000 m^2 had to attain at least 20% economy of heating energy, wile for larger buildings the heating energy savings had to be at least 30%. To apply for a loan for building's energy efficiency improvement required consent of minimum 50% + 1 vote of apartment owners to the energy efficiency improvements be done. Commercial banks imposed stricter criteria to this vote.

Loan agreements were signed by associations of apartment owners, in charge of project implementation and loan repayment, managing loan repayment from all apartment owners. A total of 660 loans were granted to energy efficiency improvements in multi-apartment buildings.

Guarantees

Since 2002, in addition to loan, guarantees on energy efficiency increase loans were provided from the national budget and KredEx funds (comparable to government guarantees). Guarantees were used in cases, when banks considered a project riskier than the market average – high level of debtors, multi-apartment building was located in a region of low real estate market value, investment costs per building's m^2 were considerably higher than average. Guarantees did not exceed 75% of loan value and the fee for guarantee was 1.2 – 1.7% per annum of the guaranteed amount balance. Of the total granted number of loans, KredEx guarantees were applied in no more than 25% of cases.

Grants

Grants to energy efficiency projects were financed from the CCFI funds in proportion of 15 – 35% of renovation costs. The amount of grant was defined by the estimated savings volume, as well as activities to be undertaken within the framework of the project (the more energy efficiency measures are accomplished and the larger the heating energy savings, the larger the amount of grant):

- 15% grant:
  - Minimum loan requirements are met
  - Buildings up to 2000 m^2 must attain at least 20% heating energy savings, larger buildings – at least 30% heating energy savings.
  - Energy consumption E class to be attained (energy consumption below 250 kWh/m^2).
- 25% grant:
  - Project includes improvement of the energy efficiency of roof, facades, replaced windows (U value 1.1), well-functioning heating supply system.
  - At least 40%heating energy savings achieved.

  - Energy consumption D class to be attained (energy consumption below 200 kWh/m²).

- 35% grant:
  - Project includes improvement of the energy efficiency of roof, facades, replaced windows (U value 1.1), well-functioning heating supply system, as well as installed ventilation system with recuperation.
  - Achieves heating energy savings at least 50%.
  - To be attained energy consumption C class (energy consumption below 150 kWh/m²).

Supervision

Supervision and control of energy efficiency increase projects is conducted by commercial banks at their discretion (both when deciding on whether to grant a loan, as well as granting loans). Commercial banks are to make sure those buildings and projects comply with provisions of the programme. After grant disbursement, KredEx conducts inspection in randomly selected 5% of buildings that have received grant support. Data on the heating energy savings achieved in projects is accumulated after project implementation. Also, in case the achieved outcome is lower than expected in the project, the volume of grant is reduced.

House management

One of the reasons for credit risk reduction regarding multi-apartment buildings energy efficiency increase projects is Estonian government's sustainable policy in the field of residential property rights and management. In the early nineties of the previous century when conducting the residential resources pool privatization in Estonia, Estonian government selected multi-apartment building management model with an emphasis on associations of apartment owners.

Associations of apartment owners took over the multi-apartment building management functions from the state (municipal) house management offices. In accordance with Estonian legislation, only associations of apartment owners will be authorized to be multi-apartment building managers after year 2018. The interests of associations of apartment owners are represented by a professional association – Association of Estonian House Managers, which, during the 18 years since the establishment of the association in 1996, has accumulated considerable experience in management and renovation of multi-apartment buildings.

Meanwhile the Estonian public sector has also exerted focused efforts to increase the capacity of multi-apartment building owners, as well as parties representing their interests in multi-apartment building management and renovation issues. The prospective public sector's support measures in the future are aimed at raising the capacity of associations of apartment owners, for instance, establishment of certified renovation and energy efficiency project managers system in the country during the 2014 - 2020 EU programming period.

Because of the aforementioned reasons, there is none ESCo operating in Estonia at this moment. Multi-apartment building owners are used to cope with house management and energy efficiency improvement of buildings on their own.

Main lessons learned

Estonia regards the current experience as positive and adequate to the market situation at the respective moment. Commercial banks, after lending under the support programme of the 2007-2013 EU programming period, have gained assurance that loans to multi-apartment building energy efficiency increase projects are low-risk and that they are ready to allot their own funds to lending to apartment owners at good interest rates further on.

Estonian colleagues also emphasized the fact that combination of loan and grants is of great importance, as well as informing the public about the available support mechanisms.

3.3.3. German experience

In Germany, support to improve the residential energy efficiency is provided by the German Development Bank KfW Bankengruppe (hereinafter – KfW). KfW offers loans for renovation of residential buildings at a rate of 1% up to EUR 75 thousand for one dwelling (apartment) to apartment owners via commercial banks. Funds to this activity are granted by the German Federal Government, which each year revises both the volume of granted annual national budget funds (for instance, EUR 10 million granted in 2014), and terms for implementation of this programme. After the project has been implemented, KfW decides on partial cancellation of the loan principal depending on the achieved energy efficiency level in the building. The amount of subsidies ranges from 2.5% to 17.5% of loan amount. Whereas in the case if building owners have conducted renovation without resorting to KfW for a loan, they can receive a grant under a separate KfW programme from 10% to 25% of the renovation costs.

A significant aspect in the KfW model is engagement of an energy consultant in project implementation, which means that an energy efficiency expert is brought in as early as the initial stage of project implementation, and he follows the implementation progress of energy efficiency measures (each project also involves a construction supervisor being engaged, who is in charge, on a daily basis, of construction quality compliance). Energy consultant confirms the achieved project result, which means that commercial banks and individuals do not have to analyse the achieved results, as it is the energy expert's obligation and responsibility. There are approximately 7 000 energy consultants in Germany, and information on their performance is publicly available of a national register. The operation of energy consultants is controlled by the German Energy Agency (dena).

3.4. Application of lessons learned in developing the multi-apartment building energy efficiency increase financial instrument

Having analysed the provision of support in Latvia as well as other countries in implementation of multi-apartment building energy efficiency increase measures, the positive experience, necessary to take over and integrate into the development of support programme of the 2014 - 2020 EU programming period, is:

- Projects have to be submitted by means of an authorized person, handling the project and who is entitled during its implementation to act on behalf of apartment owners.
- The amount of project's technical documentation previously requested under Activity 3.4.4.1 is the optimum solutions, although more detailed requirements would have to be established for the simplified renovation documentation for building facades and utilities networks to guarantee optimal construction quality in projects.

- To promote the implementation of energy efficiency increase projects in multi-apartment buildings requires combining at least two types of support – direct loans/guarantees on loans granted by banks, and grants.
- Lithuanian and German experience implies that in order to improve the construction quality requires the state to exercise control over construction (during document development, as well as during construction within project). As training of energy efficiency experts and building a list of them can be implemented only in long-term, then at the initial stage of implementation of the programme support should be given to centralized involvement of construction and energy efficiency experts in the institution providing support to improve the energy efficiency of buildings.

4. Assessment of market failures

4.1. Market failures assessment methodology

The key principles of market failures assessment methodology are defined in Article 37 of the Common Provisions Regulation and e*x ante* Assessment Methodology. The market failures assessment methodology is based on assessment of financial resources of the demand-side and supply-side, establishing the size of financing gap for multi-apartment building renovation and energy efficiency increase. If the reason for financing gap is suboptimal investment situations or market failures (in this particular case – insufficient lending volume on the financial market), then the state has grounds to intervene by a FI to fill the financing gap.

Combined analysis method is used for assessment of market failures, combining the employment of quantitative and qualitative analysis methods to identify the opinions of stakeholders of the energy efficiency increase of multi-apartment buildings. Final beneficiaries of the energy efficiency increase measures, or the primary target group, are multi-apartment building owners, possessing a real estate (apartments and deemed part of joint ownership property). The other stakeholders that are directly involved in FI implementation:

- Multi-apartment building managers and their authorized representatives (Association of Administration and Administration of Latvian Housing (hereinafter – AMALH)).
- Financial intermediaries (credit institution).
- Municipalities and their authorized representatives (Latvian Association of Local and Regional Governments (hereinafter – LALRG)).
- ESCo.

Polling of apartment owners of multi-apartment buildings is time-intensive and expensive, besides, because of objective reasons, apartment owners are not capable to provide a comprehensive opinion on houses energy efficiency issues (such as the preferable volume of grant for energy efficiency increase measures and total interest rate of the loan for building's energy efficiency increase investment project). Therefore, the Assessment Authors conducted a quantitative survey of house managers instead of apartment owners. A large part of house managers have a good knowledge of building renovation and energy efficiency increase matters, and they are aware of clients' (apartment owners) expectations and represent their interests.

The Assessment Authors first conducted in-depth interviews with FI stakeholders and, based on the obtained information, developed a questionnaire form for quantitative survey of Latvian house managers. According to data of the MoE's Register of Residential Building Managers, 352 multi-apartment building managers were registered in Latvia as at 1 December 2014, handling hose management (have at least one building management agreement). The Association of Administration and Administration of Latvian Housing was also involved for communication with house managers. For results of the quantitative survey, see Annex 3.

The quantitative survey of house managers was done in December 2014 in cooperation with the AMALH. House managers were polled by MoE employees by employing WAPI (Web Assisted Personal Interviewing – self-completed online forms) and sending an invitation to

fill the questionnaire form to the respondents' e-mails. The number of respondents as at 15 January 2015 was 116 (response rate 33%).

Approach of two types was used to calculate the multi-apartment buildings energy efficiency increase financing gap:

- Financing gap from the prospective of national energy policy goals
- Financing gap from the point of view of heating energy end consumers (the total financing gap)

Latvian energy policy targets depend on the overall EU energy policy targets (see Section 2.2). The total financing gap to heating energy end consumers (multi-apartment building apartment owners) depends on the overall financial needs of multi-apartment buildings, and is larger than the government-defined energy efficiency target by 2020 (see Section 4.5).

Apartment owners are interested in integrated renovation of multi-apartment buildings, which does not concern only energy efficiency implementation measures. Therefore, the financing gap estimate, apart from multi-apartment building energy efficiency increase measures, also includes renovation activities, required for accident-free operation of building and furnishing comfort to individuals (for instance, renovation of power supply, water supply and sewerage mains systems; stair-well repair and improvement of the surrounding territory). Additional renovation of utility systems is necessary in cases to eliminate emergency situations and ensure sustainability of investments in energy efficiency increase measures.

The multi-apartment building energy efficiency increase financing gap from the national energy policy targets prospective is calculated as follows:

*Multi-apartment buildings sector financing gap = Primary energy savings in 2020 **
*[the portion of heating energy savings pertaining to multi-apartment buildings (MWh) * 1 MWh heating energy savings investment costs] -*
(private resources + public resources to improve the energy efficiency of multi-apartment buildings).

The multi-apartment building energy efficiency increase financing gap from the point of view of heating energy end consumers (the total financing gap) is calculated as follows:

*Multi-apartment buildings sector financing gap = total quantity of multi-apartment buildings in Latvia **

*[proportion of buildings (%), where cost-effective renovation is feasible[26]) * proportion of buildings (%), owners of which are potentially interested in implementing energy efficiency increase measures] **

[integrated multi-apartment building energy efficiency increase costs (EUR) + costs of other indispensable renovations (EUR)] -

(private resources + public resources to improve the energy efficiency of multi-apartment buildings).

There are two potential options to fill in financing gaps:

- Public funding (primarily from ESI funds).
- Private funding involvement, by making use of the leverage, or multiplier effect.

[26] For additional information on cost-efficient renovation see Section **Error! Reference source not found.**

4.2. Analysis of energy efficiency increase measures and demand for financial resources

4.2.1. Assessment of the overall financial needs of multi-apartment buildings sector

There are 38.6 thousand multi-apartment buildings (three and more apartment buildings) of the total area of 50.4 million m^2 in Latvia. Of this amount, cost-effective renovation is feasible in 60% to 70%[27], or approximately 25 thousands multi-apartment buildings of the total area of 38 million m^2. [28] A small part (approximately 800; 3% of total number of houses) of these buildings will be renovated in the 2007 – 2013 EU programming period, whereas buildings constructed after 2003 (approximately 3% of total number of buildings) are relatively energy efficient (see Section 3.1). The number of potentially energy efficient buildings to be renovated in Latvia is approximately 23 500 (94% of 25 000).

A project can be regarded cost-effective energy efficiency increase project, the investment payback period of which is up to 20 years. 20 years is the average useful life of multi-apartment building structures and utility systems.

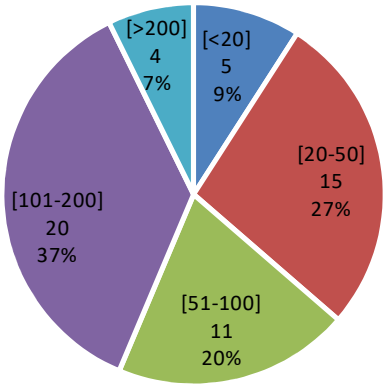
Energy efficiency implementation of measures with the proposed volume of support may not be cost effective in several cases (30% - 40% houses in Latvia, which respectively are not included in the abovementioned estimates of the number of buildings in Latvia that could be renovated for energy efficiency):

- Buildings with originally low heating energy consumption and high renovation costs.
- Buildings of high average wear of building structures and utility systems (over 75%), which endangers accident-free operation of the building and require considerable capital investments (for instance, buildings constructed before 1941, to include wooden buildings).
- Buildings of a small number of apartments and high renovation costs per one building's m^2.
- Buildings with specific requirements for renovation and improvement of energy efficiency (for instance, national and local culture monuments).

In this case it is not about buildings, where selective energy efficiency increase measures have been accomplished (they are not included in the aforementioned list and are taken into account for the abovementioned estimates of the number of buildings in Latvia that could be renovated for energy efficiency).

According to the targets of Latvia in energy efficiency field indicated in Section 2.2, to improve the energy efficiency of multi-apartment buildings requires an integrated approach, attaining post-renovation annual heat demand of 70–90 kWh/m^2/yr for heating. To achieve such an annual heat demand, the cost of investment per building's total area m^2 should be approximately EUR 150 (taking into account the changes in Latvian regulatory enactments regarding thermal insulation requirements of buildings, as well as such costs were most often mentioned by respondents as the optimal investment costs per one square metre of building's total area (see Picture 11). The Assessment Authors have used this numerical indicator for calculations of total financial needs.

[27] Expert opinions differ in this regard, with variance of 30 percentage points (from 50% to 80%).
[28] The Ministry of Economics' informative report "On Building Renovation Funding Options"; http://tap.mk.gov.lv/mk/tap/?pid=40267991.



Picture 11 The optimum investment costs (EUR/m^2) per one building, according to responses of Latvian house managers in the quantitative survey, total area square metres (n=55)

Source: Assessment Authors

Based on the aforementioned, the total financial needs of financially sustainable multi-apartment building energy efficiency increase investment projects is **EUR 5.4 billion**[29].

4.2.2. The return on investment of multi-apartment building energy efficiency increase projects

Already achieved results of multi-apartment building energy efficiency increase investment projects can be evaluated by looking at the experience of the 2007 – 2013 EU programming period. Financial analysis of energy efficiency increase projects is essential to define financial sustainability criteria, which in turn affect decisions of apartment owners concerning the optimal volume of investment in the increase of energy efficiency of multi-apartment buildings.

The Assessment Authors made a selection of multi-apartment building energy efficiency increase projects of 92 projects (17% of the number of completed projects as at February 2015), the implementation of which was completed by the end of 2012. Depending on the project implementation completion year, information is available about one to three heating seasons after the multi-apartment building energy efficiency increase measures have been accomplished. The selection included projects from each planning region (including projects from cities), accounting for Riga City separately. This section does not include data of results of ESCo-implemented projects, they are separately described in Section 4.3.6, based on the information provided by LLC Renesco. The major part of the multi-apartment buildings is 103 series buildings (35%), which were built within the timeframe of 1965 to 1988 (the quantity of apartments in a house ranges from 12 to 96).

From the aforementioned 92 project selection sample projects with extreme numerical values of the analyzed indicators were removed (for instance, the investment payback period over 100 years, 95% average heating energy economy per year), also excluded were projects of the total average cost of investment lower than 50 EUR/m^2. These projects most likely cannot be

[29] The calculation used 23 500 houses of the total area of 35.72 million m^2 and renovation costs 150 EUR/m^2.

regarded as integrated energy efficiency increase projects. As a result of this additional selection, a subset sample group of 58 objects was made.

The financial analysis results are provided in Table 12.

Table 12 Results for the selection multi-apartment building energy efficiency increase projects for years 2009-2012 in the in the 2007-2013 European Union programming period (n=58)

Region	Number of objects	Heating energy consumption before re-novation (kWh/m²/g)	Total invest. costs per building (EUR)	Pro-portion of eligible costs in the total invest. costs[1]	Average invest. costs per total area of building (EUR/m²)	Average invest. costs per useful area of buildings (EUR/m²)	Average economy of heating energy per year after re-novation[2]	Payback period of total invest. (years)[3]
Kurzeme	13	170	129 402	92%	67	79	53%	16
Zemgale	7	220	131 058	93%	91	113	57%	16
Riga	8	169	139 989	92%	60	69	46%	17
Riga region	7	170	144 197	93%	64	79	50%	17
Vidzeme	13	177	140 618	90%	59	74	50%	24
Zemgale	10	177	117 658	89%	62	74	49%	16
Total:	**58**	**187**	**139 471**	**91%**	**71**	**88**	**52%**	**18**

Remarks:
1. Eligible costs are investment costs, primarily intended for the energy efficiency increase measures
2. The average heating energy savings per year after renovation for heating without hot water
3. The investment payback period is calculated by dividing the total investment costs by the average annual heating energy cost savings in constant prices.
4. The calculations used the average heating supply tariff 60 EUR/MWh, including a 12% VAT.

Source: Assessment Authors

Table 12 data tell us that the average payback period of total investments in projects is 18 years. Approximately 90% of the total costs are eligible costs under Activity 3.4.4.1.

The investment payback period does not considerably differ between planning regions. The relatively larger average investment payback period for Vidzeme planning region projects is a specific case and can be explained by the fact that the quantity of apartments in a house was less than 30 in 7 of 13 multi-apartment buildings.

The multi-apartment building energy efficiency increase investment payback period is close to the average useful life of building structures and utility systems, and also the life-cycle for part of utilities systems (for instance, boiler equipment) is less than 20 years.

Table 13 below provides the estimate of return on investment in energy efficiency increase projects or the internal rate of return (hereinafter – IRR) for various project life-cycle scenarios, also taking into account the implications of the ERDF co-funding (grant).

Table 13 The return on investment ratio in multi-apartment building energy efficiency increase projects selection in years 2009-2012 in the 2007-2013 European Union programming period (n=58)

Regions	Number of objects	IRR (total invest. costs without grant, 21 year life-cycle[1])	IRR (total invest. costs without grant, life-cycle 11 years)	IRR (total invest. costs with grant, 21 year life-cycle)	IRR (total invest. costs with grant, life-cycle 11 years)
Kurzeme	13	3.19%	(6.41%)	11.36%	4.77%
Zemgale	7	2.21%	(7.85%)	10.02%	2.88%
Rīga	8	4.41%	(4.75%)	13.79%	7.75%
Riga region	7	0.48%	(10.25%)	7.60%	(0.38%)
Vidzeme	13	2.49%	(7.34%)	10.31%	3.19%

Zemgale	10	3.56%	(5.90%)	10.77%	3.87%
Total	**58**	**2.72%**	**(7.08%)**	**10.64%**	**3.68%**

Remarks:
1. The first year of life-cycle encompasses renovation of the multi-apartment building.
2. Grant co-funding is 50% of the eligible project costs.
3. The calculations used the average heating energy tariff 60 EUR/MWh, including a 12% VAT

Source: Assessment Authors

According to the terms of financing of multi-apartment building energy efficiency increase projects for the 2007 – 2013 EU programming period, the maximum public funding (ERDF grant) intensity is 50% of the eligible project costs (in some cases allowing to increase the aid intensity by10 percentage points).

Project submitters financed the outstanding portion of eligible costs primarily by loans with credit institutions (own funds constituted a relatively small portion of funding of eligible costs). The repayment period of the loan principal for the majority of projects is 10 years after completion of renovation.

As Table 13 data indicate, the return on investment in a 11-year project life-cycle without funding by grant is negative. The average return on investment in a 21-year project life-cycle is 2.7%. It means that implementation of an integrated energy efficiency increase project (with average projects costs of 71 EUR/m^2, as they were during the time of implementation of projects included in the selection sample group) require a loan with a repayment term of the principal up to 20 years and total interest rate up to 3%, so that the total costs for apartment were lower compared to a "situation without a project".

Receiving a grant of 50% of the eligible project costs, the return on investment in multi-apartment building energy efficiency increase investment projects is positive at a 21-year, as well as an 11-year project life-cycle. As conceivable from the data of Table 13, at a 10-year repayment period of the loan principal and grant co-funding of 50%, the loan interest rate could not exceed 3.7%, assuming that the average investment costs per total area of building are 71 EUR/m^2.

It should be kept in mind that grant co-funding is calculated only for eligible project costs, which account for large proportion (90% on average) of the total project costs. Therefore, to achieve integrated renovation of a multi-apartment building had a positive return on the project at 11-year life-cycle, encompassing energy efficiency increase measures and other indispensable renovation activities, grant co-funding should be larger than 50% at an interest rate of 4%.

Estimate of financial indicators in energy efficiency increase projects in buildings of various number of apartments is provided in Table 14 below.

Table 14 Financials of multi-apartment building energy efficiency increase projects selection in years 2009-2012 in the 2007-2013 European Union programming period for buildings of various number of apartments

Number of apartments in house	Buildings of this number of apartments	Heating energy consumption prior to renovation kWh/m^2	Average economy per year after renovation (%)	Total investment costs per total area (EUR/m^2)	Scenarios with grant and with interest on loan, 21 year life-cycle		Scenarios without grant and without interest on loan, 21 year life-cycle	
					Total investment payback period (years)	IRR (%)	Total investment payback period (years)	IRR (%)
8	2	221.50	40%	93.48	23	(1.03%)	20	1.74%

12	9	210.17	55%	88.37	13	3.29%	16	2.68%
18	9	181.58	50%	67.23	14	1.09%	18	1.77%
24	5	229.21	43%	72.44	13	1.63%	18	1.97%
30	4	152.22	50%	63.87	13	2.47%	18	1.63%
32	4	160.95	66%	66.46	8	9.45%	13	5.19%
45	4	184.58	58%	62.08	7	11.34%	11	6.08%
70	2	194.70	61%	101.48	10	5.38%	13	4.21%

Remarks:
1. The first year of life-cycle encompasses renovation of the multi-apartment building.
2. The investment payback period is calculated by dividing the total investment costs by the average annual heating energy cost savings in constant prices.
3. The calculations used the average heating supply tariff 60 EUR/MWh, including a 12% VAT.
4. Grant co-funding is 50% of the eligible project costs.
5. The calculations used the average annual loan interest rate 4.45%

Source: Assessment Authors

Table 14 data suggests that as the quantity of apartments in a house rises, the return on investment ratio improves (the investment payback period shrinks, while the IRR increases), reaching the best indicators in houses with 45 apartments. Indicators in houses with 70 apartments are slightly worse, although these data are less reliable, as the selection sample group contains only 2 such buildings.

We conclude from this analysis that integrated multi-apartment building energy efficiency increase projects, including ones contemplated together with indispensable house renovation activities (mainly complete or partial renovation of power supply, water supply and sewerage utility systems), in a medium term period (up to 10 years) are not financially sustainable investment projects to be able to finance the necessary capital investments from the economy on heating energy cost savings.

When a community of apartment owners do not have available long-term financial resources with a repayment period longer than 10 years, it means that energy efficiency increase project would result in apartment owners' monthly payments for apartment going up instead of shrinking or remaining on the level before the building's renovation.

According to the results of in-depth interviews with stakeholders, many apartment owners have objections to the increasing total apartment maintenance costs, due to limited affordability or objections or private nature, including against making any capital investments in the building. This can be attributed to varied perception of individuals of ownership of real estate and responsibility par for its maintenance. Often individuals regard as their joint ownership property to be restricted only to their own apartment, not the house as a whole (the area of the building outside my apartment door is municipality's business).

If multi-apartment building energy efficiency increase projects do not have available long-term funding for the life-cycle of up to 20 years or public co-funding to partially compensate the investment costs, multi-apartment building owners are unable to provide the optimal investment volume in energy efficiency increase measures that reached the energy efficiency targets for buildings in Latvia in a mid-term period (by 2020) and long-term period (after 2020).

4.2.3. Economic return of multi-apartment building energy efficiency increase projects

The estimate of economic rate of return was accomplished according to the *Ex ante* Assessment Methodology. In accordance with recommendations for the internal economic

rate of return (hereinafter – ERR) in multi-apartment building energy efficiency increase projects described in Section 3.1.4 of the methodology, their monetary benefits include:

- Heating energy costs savings (defined by employing EUR/kWh).
- GHG reduction (defined by employing national level CO_2 emissions price).
- In case of necessity, additional economic benefits, for instance, creating jobs, rise in productivity, health benefits.

Calculations included the heating energy costs savings achieved as a result of projects, by employing the average heating energy tariff 53.57 EUR/MWh (heating energy tariff without VAT; see Remark 5 below Table 15) and economic benefits from the GHG reduction, by using the average annual CO_2 emissions stock market price 14.46 EUR/t of year 2010.

Table 15 below provides the economic rate of return of energy efficiency increase projects with various project life-cycle scenarios, which includes taking into account implications of the ERDF co-funding (grant).

Table 15 The economic rate of return in multi-apartment building energy efficiency increase projects selection in years 2009-2012 in the 2007-2013 European Union programming period (n=58)

Regions	Number of objects	ERR (total invest. costs without grant, 21 year life-cycle[1])	ERR (total invest. costs without grant, life-cycle 11 years)	ERR (total invest. costs with grant, 21 year life-cycle)	ERR (total invest. costs with grant, life-cycle 11 years)
Kurzeme	13	4.66%	(4.33%)	17.25%	12.28%
Latgale	7	3.63%	(5.83%)	15.67%	10.14%
Riga	8	5.99%	(2.57%)	20.79%	16.37%
Riga region	7	1.80%	(8.60%)	12.64%	6.24%
Vidzeme	13	3.94%	(5.55%)	16.03%	10.44%
Zemgale	10	5.07%	(3.79%)	16.10%	10.61%
Total	**58**	4.18%	(5.11%)	16.41%	11.02%

Remarks:
1. The first year of life-cycle encompasses renovation of the multi-apartment building. Analysis is performed at constant prices.
2. Grant co-funding is 50% of the eligible project costs.
3. The calculations used the average heating energy tariff (without VAT 12%) 53.57 EUR/MWh.
4. The calculations used the average annual CO_2 emissions stock market price 14.46 EUR/t of year 2010.
5. The total investment costs used in calculations did not include the indirect taxes (VAT) (fiscal corrections of financial cash flows)[30].

Source: Assessment Authors

Table 15 data suggest that the average economic rate of return (ERR) of projects at a 21-year life-cycle scenario without a grant is 5.5%, which corresponds to the capital opportunity costs – social discount rate 5.0%[31]. It should also be considered that the economic return of energy efficiency increase projects actually is larger than the aforementioned, as all non-monetary benefits are not quantified (for instance, increase in the number of jobs). It means that the implementation of energy efficiency increase investment projects is beneficial for public in general, as the economic benefits exceed the economic costs.

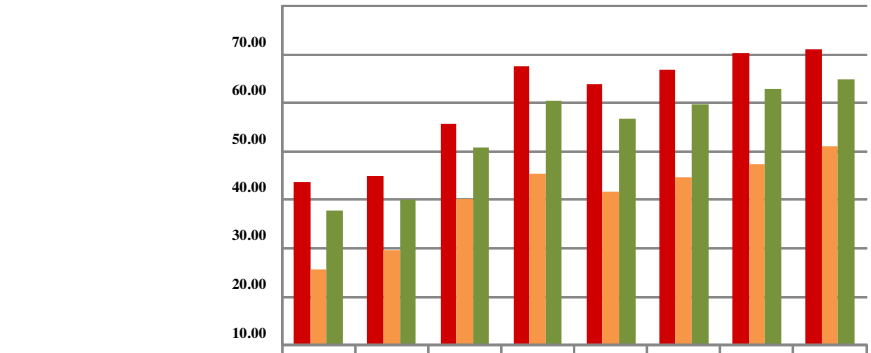
4.2.4. Analysis of households affordability

According to the CSB data, households in Latvia in 2013 spent on average EUR 54.95 per month for heating (including a hot water supply), which accounts for 7.5% of the total household's monthly budget. Since 2006 until 2013, heating expenses have nearly doubled,

[30] According to DG REGIO Guidelines to cost – benefit analysis of investment projects of 19 December 2014
[31] DG REGIO Guidelines to cost – benefit analysis of investment projects of 19 December 2014. Manual of economic assessment of cohesion policy in 2014-2020.

while their proportion in household's budget grew by 2.5 percentage points. Since 2010 the expenses growth has been relatively insignificant, with the proportion remaining the same.

See Picture 12 for dynamics of heating and hot water expenses.



	2006	2007	2008	2009	2010	2011	2012	2013
Heating expenses (incl. hot water) In cities (EUR/month)	33.73	34.98	45.73	57.54	53.91	56.86	60.31	61.20
Heating expenses (incl. hot water) in rural areas (EUR/month)	15.56	19.64	30.23	35.31	31.71	34.66	37.48	41.16
Heating expenses (incl. hot water) average in Latvia (EUR/month)	27.89	30.08	40.81	50.46	46.84	49.74	52.96	54.94

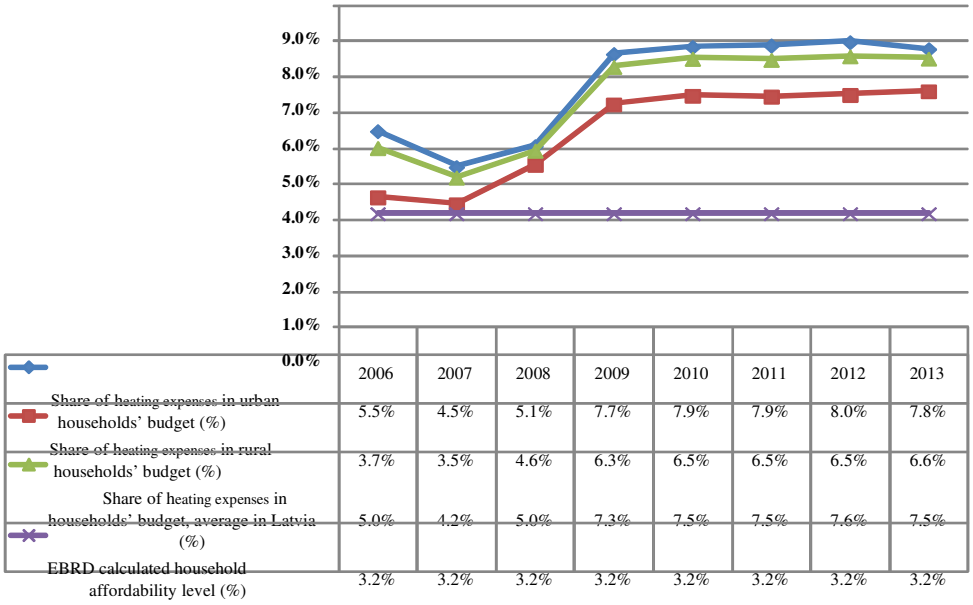
Picture 12 Households heating expenses dynamics 2006-2013

Remarks:
1. Cities – administrative territories, which have been granted a city status
2. Rural territories – administrative territories, which have not been granted a city status
3. Heating expenses also include the fee for hot water supply

Source: Assessment Authors

As seen in Picture 12, heating expenses in cities are considerably higher than in rural areas. Rural households mainly use biomass for heating, while in cities the majority of centralized heating supply systems use fossil fuel, which is relatively more expensive.

See Picture 13 for dynamics of the proportion of heating expenses in household's budget.



	2006	2007	2008	2009	2010	2011	2012	2013
Share of heating expenses in urban households' budget (%)	5.5%	4.5%	5.1%	7.7%	7.9%	7.9%	8.0%	7.8%
Share of heating expenses in rural households' budget (%)	3.7%	3.5%	4.6%	6.3%	6.5%	6.5%	6.5%	6.6%
Share of heating expenses in households' budget, average in Latvia (%)	5.0%	4.2%	5.0%	7.3%	7.5%	7.5%	7.6%	7.5%
EBRD calculated household affordability level (%)	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%

Picture 13 Proportion of heating expenses in households' budget 2006-2013

Remarks:
1. Cities – administrative territories, which have been granted a city status
2. Rural territories – administrative territories, which have not been granted a city status
3. Heating expenses also include the fee for hot water supply

Source: Assessment Authors

The average proportion of heating and hot water expenses more than twice exceeds the average affordability level of Latvian households (3.2%) calculated in the research of the European Bank for Reconstruction and Development (hereinafter – EBRD) "An affordability analysis for transition countries"[32]. This study analyzes the affordability of East European and former soviet republics' households of utility services (power, heating and water supply), by using information from household surveys and data of utility services tariffs.

From this information we conclude that the affordability of individuals is too limited to carry out renovation and energy efficiency increase measures, which result in increased households' budget expenses for dwelling.

4.2.5. Private funding of multi-apartment building owners

Private funding of multi-apartment building owners includes loans with financial intermediaries (mainly credit institutions) and own funds.

[32] DG REGIO Guidance on the Methodology for carrying out Cost-Benefit Analysis. Working Document No 4. 2006.

Own funds

Multi-apartment building owners monthly payments consist of building's administration and management expenses, expenses for utility services and expenses for additional services provided by house managers.

Part of building's administration and management expenses are due to joint ownership property repair provisions fund, if agreed so by joint ownership property owners and house managers.

Usually part of this fund is defined as proportionate share of the monthly management fee for improvement of the joint ownership property technical condition at the discretion of the house manager. The other part of the joint ownership property repair provisions fund are funds for repairs of the joint ownership property, which are agreed upon to be carried out during the respective business year between joint ownership property owners and the building's manager. A fixed monthly contribution as EUR/m^2 is determined for this type of provisions.

Joint ownership property repair provisions fund can be a constituent of the management fee, but it may as well be a separate expense item.

Joint ownership property repair provisions fund also includes a reserve for repayment of loan principal and interest, in case, for instance, the community of apartment owners has borrowed funds with a credit institution to improve the energy efficiency of their multi-apartment building.

Monthly payments into the joint ownership property repair provisions fund can run up to 50% of building's monthly administration and management costs.

According to the quantitative survey results, a house's administration and management monthly fee ranges between 0.27 EUR/m^2 and 0.80 EUR/m^2. For a 103 series building having 62 apartments and useful area of 3 580 m^2 and fixed provisions fund's monthly fee 0.40 EUR/m^2 (for a 65 m^2 apartment these monthly payments mean EUR 26), the annual amount of the repair provisions fund could theoretically amount to approximately EUR 17 000. According to actual samples of increasing the energy efficiency in multi-apartment buildings, costs for integrated energy efficiency increase for such a house would amount approximately to EUR 284 000. It means that a community of apartment owners should have to accumulate the fund for 17 years to be able to come up with the necessary amount of financial resources for renovation of their building (assuming that the provisions fund is used only for financing the renovation activities).

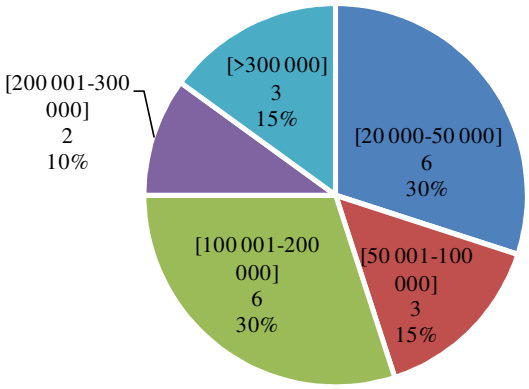
Apartment owners use funds from the repair provisions fund for financing of minor expenses in multi-apartment building energy efficiency increase projects, for instance, for payment for energy audit and technical project or to build a deposit for 3 month loan repayments.

56% of respondents of the quantitative survey have indicated that without the support of public funding (EU funds) would require raising the building management fee, and repairs would have been accomplished after building provisions. 24% of respondents believe that in such case they would have to get a loan with a credit institution.

House managers believe that without the availability of public funding, building management fee would have to be raised to 1 – 2 EUR/m^2 a month. It is approximately double the average amount to be paid at this moment for multi-apartment building's administration and management. Regardless of that, funds would still have to be accumulated over a relatively long period of time.

Loans

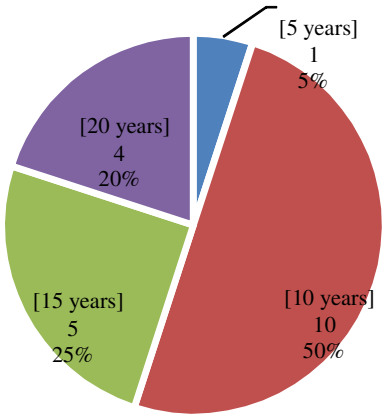
According to the house managers' quantitative survey results, 30% of respondents believe that without the availability of public funding, the community of apartment owners would borrow funds ranging from EUR 20 000 to EUR 50 000 with repayment of loan principal up to 10 years, but 30% of respondents would borrow up to EUR 200 000 with repayment of loan principal up to 15 years (see Pictures 14 and 15). Respondents, which indicated the loan amount between EUR 50 000 and EUR 100 000, specified the repayment period of the loan principal up to 10 years.



Picture 14 Latvian house managers quantitative survey respondents' indicated loan volume per building (EUR) without the availability of public funding (n=20)

Source: Assessment Authors

Similar information to the Assessment Authors was provided by representatives of credit institutions in December 2014, they specified that prior to the EU funding availability, in 2010 the approximate principal amount of loan was from EUR 20 000 to EUR 30 000 with a term from 3 to 5 years. It also should be noted that no such information is available that implementation of new integrated multi-apartment building energy efficiency projects since Augusta 2013 were carried out dispensing without EU funds support, financed by credit institutions.



Picture 15 Latvian house managers quantitative survey respondents' indicated loan payback period without the availability of public funding (n=20)

Source: Assessment Authors

Joint-stock Company Latvijas Hipotēku un zemes banka (Mortgage and Land Bank of Latvia, hereinafter – HIPO), when embarked on its multi-apartment buildings lending programme in 2001, initially planned the average loan amount per building to be EUR 85 700, but the actual demand in 2005 was only EUR 20 000. It can be explained by the fact that individuals did not have funding by grants available and thus they went for the minimal renovation programme, or selected repairs, for instance, renovation of roof or heating system.

A similar opinion at the in-depth interviews was expressed by representatives of house managers. Irrespective that the quantitative survey results demonstrate the house managers' interest in performing at least repairs of priority necessity, the opinions of individuals regarding this matter could be different. After the year-2008 economic crisis, people have become a lot more cautious and instead of perform selected energy efficiency measures and repairs, they choose to postpone making capital investments to the last moment (emergency situation). As for better well-off people, they, instead of taking part in financing building's renovation, prefer moving away to a dwelling of superior quality (multi-apartment or private house).

We conclude from the aforementioned that the use of own funds and loans without the availability of public funding does not ensure optimal investment decision making to improve the energy efficiency of multi-apartment buildings, to achieve the quantitative energy policy indicators established by the Government of Latvia.

4.2.6. Financial demand affecting factors

The factors affecting the financial demand of multi-apartment buildings energy efficiency increase projects were identified by means of in-depth interviews and a quantitative survey. By these in-depth interviews, major problems (risks) of housing energy efficiency increase projects were identified, the degree of significance of which was determined by respondents of the quantitative survey. Information about the survey results is provided in Table 16.

Table 16 Ranking of problems regarding increase of energy efficiency in multi-apartment buildings according to Latvian house managers (n=85)

Problem/risk	Ranking, proportion of responses				
	1	2	3	4	5
Insufficient knowledge about energy efficiency measures and their necessity	14%	27%	26%	15%	18%
Incorrect attitude towards joint ownership property (interest only in own apartment, not the house as whole)	30%	23%	17%	17%	12%
Problems around majority decision making by apartment owners to carry out the energy efficiency increase measures	26%	23%	20%	9%	9%
Limited affordability of apartment owners (households' income) construction operations financing	32%	31%	13%	13%	13%
Funding (grants and loans at low interest rates) limited availability	36%	24%	18%	13%	10%

Remark: Responses to questions are arranged by priority (1 – the most essential problem/risk; 5 – the least essential problem/risk).

Source: Assessment Authors

It follows from data of Table 16 that house managers as the most important of the named problems consider to be the limited availability of public funding, the limited affordability of apartment owners and incorrect attitude towards joint ownership property. The insufficient knowledge of individuals about energy efficiency increase measures and their necessity is regarded by house managers to be a relatively minor problem.

Other problems, not mentioned in Table 16, but mentioned by house managers:

- Apartment owners' concerns about poor quality of accomplished construction work.
- Ineffective procurement procedures.
- Lack of research and information about the accomplished increase of energy efficiency measures, their benefits and cost-efficiency.
- Problems to receive public funding for buildings having low energy efficiency increase potential and which are built before the World War I.

A number of house managers, for instance, LLC Rīgas Namu Pārvaldnieks, have suggested combining construction objects into procurement lots with a total contractual procurement amount of several million EUR to spark the interest of mid-size and large construction companies in engaging in procurement tenders of multi-apartment building energy efficiency increase projects.

One of the problems is getting multi-apartment building owners informed about the necessity and options of energy efficiency increase measures, which was mentioned in both the quantitative survey, and the in-depth interviews. The significance of furnishing information to the public was also emphasized by credit institutions during in-depth interviews, indicating that regular and positive information about the implemented multi-apartment building energy efficiency increase projects is of utmost importance.

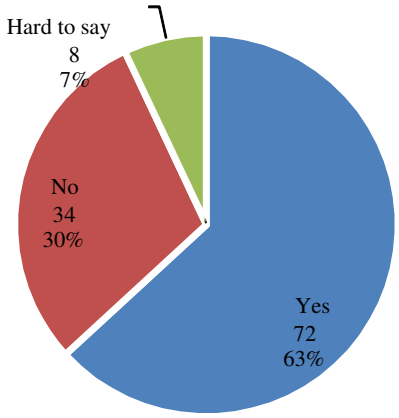
The answers of respondents regarding house energy efficiency increase problems draw a clear picture – what assistance house managers expect from the state. 79% of those responding named financial support in implementation of energy efficiency increase projects, while 40% of respondents – information and publicity activities for public in mass media. Relatively smaller proportion (24%) support the proposal of setting up a national-scale energy efficiency competence centre with regional branches.

One of the house managers' suggestions is to create a regulatory base that differentiated the real estate tax in accordance with the building's energy efficiency level. Although municipalities are entitled to apply up to 90% real estate tax according to Latvian regulatory enactments, the proposed idea is to establish a mandatory differentiation of real estate tax according to a building's energy efficiency level (setting energy efficiency level criteria in accordance with the building's annual heat demand).

4.2.7. Funding demand estimate

The demand for the increase of energy efficiency in multi-apartment buildings depends on the success of tackling the risks accounted in the previous section, as well as on the efficiency of FI activities (services quality, easing the bureaucratic burden, etc.).

63% of the quantitative survey respondents are interested in taking part in the multi-apartment buildings energy efficiency increase programme of the 2014 – 2020 EU programming period, 30% of respondents were not interested, while 7% of respondents for the time being were unable to answer to this question (see Picture 16). Among the respondents providing positive and negative answers were house managers, with and without experience of participating in EU co-financed energy efficiency increase projects.



Picture 16 Answers of Latvian house managers quantitative survey respondents to the question regarding interest to participate in the multi-apartment building energy efficiency increase programme of the 2014–2020 EU programming period (n=114)

Source: Assessment Authors

The unwillingness of respondents to participate in the multi-apartment building energy efficiency increase projects could be for various reasons, which cannot be told from the quantitative survey, although they are implied by the aforementioned risks and public funding availability provisions.

As it was already mentioned in Section 4.2.1, house managers were interested in integrated energy efficiency increase programme, simultaneously performing renovation activities not related to energy efficiency. Important for the implementation of energy efficiency increase investment programme is to have a relatively long repayment period of the loan principal and balanced proportion between the loan interest rate and the volume of grant for investment expenses.

Also, support is necessary to ensure funding availability to not related with energy efficiency renovation activities.

Integrated renovation of a building cost less than splitting renovation into stages, respectively, into energy efficiency related and unrelated activities, and it also provides synergies as it contributes to the sustainability of energy efficiency investments, securing building's accident-free operation.

The quantitative survey questionnaire form included a question – what the loan interest rate should be, when the co-funding by grant to investment expenses is 35%, but the repayment period of the loan principal is 20 years. The major part of respondents named the total loan interest rate of up to 3%. Such conclusions can also be arrived at from the in-depth interview results. And, for instance, the official of LLC Renesco said that the total loan interest rate, at these provisions, should not even exceed 2%. If the interest rate is raised, the amount of grant co-funding should also be raised respectively. With these assumptions followed, the repayment of loan principal and interest from heating energy savings could be feasible.

Representatives of stakeholders (for instance, house managers, ESCos and municipalities) have got used to the fact that in the previous EU programming period, the public funding support intensity was 50% (in some cases 60%). Therefore, funding recipients anticipate similar terms in the new EU programming period.

The questionnaire form of the quantitative survey offered respondents to select the preferred alternative of the following loan interest rate options (with a remark that the total amount of interest payments paid in all offered cases is similar):

- 6-month EURIBOR + 2% to 20 years.
- 6-month EURIBOR + 4% to 10 years.
- 6-month EURIBOR + 6% to 7 years.

53% of respondents selected the first option, 42% of respondents – the second option, and only 5% of respondents – the third option.

The obtained results reconfirm the fact that a long-term loan with a relatively lower interest rate is necessary for multi-apartment building energy efficiency improvement.

Quantitative assessment of the demand of funding for the increase of energy efficiency in multi-apartment buildings is provided in Section 4.2.

A separate note should be made regarding the potential interest of multi-apartment buildings of Riga in using FI. Only 34 projects, co-financed by the ERDF, were completed in 2007 – 2013 EU programming period in Riga City. 28 of these projects were implemented by associations of apartment owners or cooperatives societies, implementation of the rest of these projects was done by private house management companies. Within the framework of Activity 3.4.4.1, LLC Rīgas Namu Pārvaldnieks has completed renovation of 1 building and concluded 9 other agreements on implementation of energy efficiency increase projects in multi-apartment buildings.

The largest house manager of Riga City and Latvia is LLC Rīgas Namu Pārvaldnieks, which manages 4590 buildings or 38% of the total number of multi-apartment buildings in Riga City. This enterprise, 100% owned by Riga municipality, was established in 2010, merging 15 municipal house management offices. The company's staff have identified 1 135 multi-apartment buildings, where performance of energy efficiency increase measures would be cost effective (reinforced concrete panel buildings, where the quantity of apartments is not less than 60). As at the day of drafting the Ex ante Assessment, decision regarding building's energy efficiency improvement was made by 13 multi-apartment building owners, taking into account the Activity 3.4.4.1 provisions.

The average quantity of apartments Riga multi-apartment buildings is larger than on average in other Latvian cities, therefore apartment owners find it hard to make decisions regarding the management of their joint ownership property.

LLC Rīgas Namu Pārvaldnieks currently conducts identification of multi-apartment buildings, where the vote proportion general meeting of apartment owners in the decision regarding the implementation of energy efficiency increase project might reach 2/3 of the number of apartment owners. The potential quantity of multi-apartment buildings for participation in the FI might be several hundred houses.

4.3. Analysis of the supply of energy efficiency increase measures and financial resources

4.3.1. Financial products of Latvian credit institutions

Lending to multi-apartment building renovation and energy efficiency increase in Latvia was started in 2001 by HIPO. This state-owned bank granted mortgage loans until the year 2009, when it terminated activities in this market segment due to the envisaged restructuring of the bank (selling its commercial assets and establishment of JSC Development Financial Institution (hereinafter – DFI)). In December 2014, the loan portfolio of JSC Latvian Development Financial Institution Altum (hereinafter – Altum) contained only four multi-apartment building renovation loans, while there were 156 loans under the Housing development lending programme (mortgage loans to procurement or construction of dwelling).

The total annual interest rates on loans granted by HIPO ranged between 5% and 8%, the average loan amount to a single multi-apartment house up to EUR 20 000. Loans were granted for implementation of minimum necessary renovation and energy efficiency increase measures, for instance, replacement of windows and repair of building's facade.

Based on HIPO's experience, other commercial banks also embarked on the multi-apartment building renovation and energy efficiency increase lending. JSC Swedbank (then – JSC Hansabanka) started issuing loans in 2004, followed by JSC SEB banka (then – JSC SEB Unibanka) in 2005.

Initially multi-apartment building renovation projects were financed by Latvian credit institutions without financial support of the state, therefore the average granted loan amounts to a single house was small. For instance, the average loan amounts granted by JSC Swedbank per one project in 2005 was approximately EUR 49 000, but in 2014 – approximately EUR 192 000, or 4 times larger.

Credit institutions took an active part in the market of lending to multi-apartment buildings as of 2011, when funding to heat resistance increase projects in multi-apartment buildings under Activity 3.4.4.1 became available.

Loans for renovation of multi-apartment buildings are granted by JSC Swedbank, JSC SEB Banka, JSC DNB banka, JSC Citadele banka and Nordea Bank AB Latvian branch. The most active market players are JSC SEB Banka and JSC Swedbank, who have built multi-apartment building renovation loan portfolios. The largest loan portfolio is that of JSC SEB Banka. Another relatively active player is JSC DNB banka, while other credit institutions, if compared, are rather selective in lending to multi-apartment buildings by inspecting some pilot projects, and intensive lending to multi-apartment buildings is on their strategic development schedule.

Information at the disposal of the Assessment Authors regarding loans granted by Latvian credit institutions for renovation of multi-apartment buildings by 2015 is provided in Table 17 below.

The Association of Commercial Banks of Latvia does not collect statistical data on activities of credit institutions in lending to multi-apartment buildings. Neither does LIAA have such information for the 2007 – 2013 EU programming period, as grants and loans granting processes are detached. In accordance with the information provided by the LGA, in 2014 LGA granted 96 loan guarantees to three credit institutions on lending to multi-apartment

buildings with the average annual interest rate 4.45% (fixed rate + EURIBOR 3 or 6-month variable rate).

Table 17 Loans granted by Latvian credit institutions for renovation of multi-apartment buildings

Credit institution	Qty of agreements 2005 -2014	Annual interest rates on loans	Average loan amount per project (EUR)	Average repayment period of principal amount
AS SEB Banka	n.a.	n.a.	n.a.	n.a.
AS Swedbank	302	2.79% -7.50% + 3M EURIBOR	174 000	11
AS DNB banka	n.a.	n.a.	n.a.	n.a.
AS Citadele banka	4	3.5% - 4% + EUR 6M EURIBOR; LIBOR	191 000	18
Nordea Bank AB	5	4% - 5% + 3M EURIBOR	120 000	15

Remarks:
1. n.a. - information is not available to the Assessment Authors (by the day of drafting the Ex ante Assessment, SEB Banka had not provided the requested information).
2. the quantity of agreements is smaller than the quantity of borrowers and the quantity of houses. For instance, JSC Citadele banka has granted 3 loans to LLC Renesco for renovation of 15 houses and 1 loan to a house manager for renovation of 1 building.
3. The average loan amounts and the payback period of principal amount is provided for a period of time between 2011-2014.
4. the quantity of agreements signed by JSC Swedbank within the timeframe of 2011 – 2014, when public funding under Activity 3.4.4.1 was available, is 169. Interest rates are provided for 2013-2014

Source: Assessment Authors, based on the of credit institutions the information provided by

Table 17 data indicate that loan interest rates have a relatively large range of variance. It can be seen best in the data of JSC Swedbank, as this credit institution has a relatively large number of granted loans, also this credit institution has granted 27 loans in cities and municipal areas.

Loan interest rates depend on the multi-apartment building's location, as well as buildings size (number of apartments). Renovation costs per 1 m^2 in a house of, for instance, 18 apartments are going to be higher than in a house of 60 apartments. Therefore, such buildings are regarded riskier by commercial banks and interest rates in such cases are higher.

Of 105 loan agreements of JSC Swedbank, about which the credit institution has provided information for the period of years 2013 and 2014, the arithmetic mean of average annual interest rates is 4.70%. Interest rates equal or lower than 3%, are present only in 5 loans, or just 5% of the size of selection sample.

4.3.2. Municipal funding

Information about municipal funding granted in the 2007– 2013 EU programming period for renovation of multi-apartment buildings is provided in Section 2.3.5. We conclude from these data that municipalities primarily co-finance the preparation costs of energy efficiency increase projects (energy audit, development of technical project, etc.), but comparatively less – renovation itself.

By now municipalities have guaranteed a small portion of the funding for energy efficiency increase in multi-apartment buildings (within the timeframe of 2009 to 2013, EUR 6.2 million have been provided to 741 building), primarily paying the fees for energy audit and drafting of other project-related documentation.

The attitude of municipalities towards the support to energy efficiency increase in multi-apartment buildings differs. For instance, Liepāja municipality supported energy audit of houses and financing of development of other technical documentation by 2010, but put a stop on this initiative later. The reason for rejecting was relatively much developed

documentation and small number of implemented projects. Liepāja municipality believes that it has to aid individuals regarding informing and educational matters, but it does not provide co-funding (in case houses owners are willing to renovate their houses, they should have sufficient motivation to finance the relatively low project launching costs). Although, Daugavpils municipality is the most active in engaging the co-financing of multi-apartment building renovation, offering grants also to renovation.

Regardless of the current relatively calm financing activity, municipalities might play a significant role in implementation of the 2014–2020 energy efficiency programme. It is of crucial importance in remote territories, where credit institutions refuse to finance housing energy efficiency increase projects or offer to do it at relatively high loan interest rates. Municipalities, by offering a complementary municipal grant along with the grant from the EU funds, could enhance the energy efficiency improvement of the residential resources pool within their administrative territory.

At the same time, conducting interviews with the LALRG and officials of municipalities, the Assessment Authors have no knowledge of an essential municipal co-funding growth with regard to energy efficiency increase projects were expected. And, taking into account the activity of the previous EU programming period and the expected maximum number of projects in 2014– 2020 EU programming period (up to 1 770 projects), the Assessment Authors assume that the municipal funding for energy efficiency improvement in multi-apartment buildings could be 12 million EUR (approximately twice the amount in the previous EU programming period).

4.3.3. Financial products of international financial institutions

In the 2007 – 2013 EU programming period, international financial institutions (EBRD, EIB, CEB, Nordic Investment Bank (hereinafter – NIB), etc.) have not engaged in lending to multi-apartment buildings energy efficiency increase measures in Latvia. For this purpose, CEB has granted a loan to Estonian national company KredEx (please refer to Section 3.3.2 for additional information).

The advantage of international financial institutions is to offer long-term loans up to 20 years at relatively low fixed annual interest rates (up to 2%). International financial institutions are able to offer such loans to financial intermediaries in Latvia (DFI, commercial banks), which, in turn, provide loans to final recipients (borrowers) to improve the energy efficiency of multi-apartment buildings. As financial intermediaries have to assume the credit risks of final recipients, then the loan interest rate includes cover for these risks and loan maintenance costs, which increase the interest rate by 2 to 4 percentage points. In the case of DFI, to qualify for a loan from an international financial institution, usually requires a government guarantee, which respectively must be included in the national budget, and activities required by Latvian regulatory enactments[33] must be accomplished to receive them. In addition to the traditional long-term loans (to Latvian credit institutions and/or DFI) international financial institutions also consider an option to offer financial products intended for energy efficiency increase projects financing in market segments where Latvian credit institutions are unable to offer equal financial products at the moment.

[33] Cabinet Regulation No 391 of 8 July 2014 "Procedure by which the Requests for the Guarantees to be Issued on Behalf of the State shall be Included in the Draft Annual National Budget Law, and the Procedure for the Issuance and Supervision of the Guarantees.

So, for instance, within the timeframe of January 2015 to February 2015, the EBRD conducts a due diligence on the ESCo market. The aim of this research is to find out the technical, legal and financial opportunities for implementation of ESCo financial support instruments in Latvia. One of the problems for ESCo operation in Latvia is the capitalization problem, covered in Sections 4.3.6 and 4. The number of renovation projects implemented by ESCos is limited by the amount of own capital, therefore the EBRD offers a solution: to establish an energy service provider's special purpose vehicle (hereinafter – SPV), which borrows long-term financial resources from the EBRD (or other credit institutions) and refinances the loans taken by ESCos with credit institutions, thus relieving the balance-sheets of these companies of non-current liabilities.

EBRD is interested in commercially viable projects, therefore the selection is ESCo projects, where financial investments have to be recovered from the economy of heating energy. Besides, the ESCo staff must possess an appropriate qualification to be able to control well the document preparation process and construction operations, thus achieving economy of heating energy consumption on a long term.

ESCo, transferring loan commitments to an SPV, would proceed with providing energy efficiency increase and heating energy supply services while the energy performance contract (hereinafter – EPC) is in effect. It means that SPV as well must have the adequate qualification to be able to conduct safe selection of ESCo projects and ensure good supervision of ESCo activities in a long-term.

SPV selection criteria in Latvia are precisely not clear at the moment, although, in an interview with the Assessment Authors, the EBRD officials made a sign that activity of such companies most likely would require cooperation and experience of foreign partners. The standard requirements for SPV, defined by the EBRD, are an experienced and qualified staff, good track record (i.e., loan most likely will not be granted to a start-up company), experience in handling energy efficiency increase projects of that scale and sufficient stock capital (according to the minimal requirements established by bank).

The minimum loan amount that EBRD is ready to grant to a single SPV is 10 million EUR (for comparison - the loan portfolio of LLC Renesco (ESCo) for energy efficiency improvement of 15 multi-apartment buildings is EUR 3.089 million. Loan ceiling is not limited, and it is defined by market conditions. The EBRD is ready to start granting loans during the first half of 2015. The proposed idea is also supported on conceptual level by those Latvian credit institutions that for the time being have not engaged in the SPV lending market. Additional information is available in Section 4.

Regarding the fact that EBRD currently conducts a preliminary study and the viability of the proposed support model has not been not identified, the demand for it, the necessary state aid amount, funding costs, as well as technical, legal and financial options for implementation of ESCo support financial instruments in Latvia, the EBRD funding has not been included in the list of financial sources for increase of energy efficiency of multi-apartment buildings programme.

4.3.4. Green public investment

CCFI operates in Latvia based on the green public investment principle (see Section 2.3.2).

The Kyoto Protocol established the greenhouse gas emission targets for the first commitment period lasting from 1 January 2008 to 31 December 2012. The Doha Amendment to the

Kyoto Protocol adopted on 8 December, 2012 in Doha (Qatar) sets the commitments of the parties from 1 January, 2013 till 31 December 2020.

According to CCFI, the resources acquired from sale of Latvia's assigned amount units are transferred to a specific aim in the fields of environmental protection and increasing of energy efficiency. The authors of *Ex ante* Assessment have no information that from 2015 to 2020 CCFI would have earmarked resources for funding of increasing of energy efficiency of multi-apartment buildings.

4.3.5. Financial products of investment funds

The investment funds working in Latvia do not invest in energy efficiency increasing projects of multi-apartment buildings. The asset management funds owned by credit institutions are interested in investing in FI increasing energy efficiency of multi-apartment buildings by entering the secondary lending market (see Section 4.3.3). For example, the pension funds owned by banks have spare resources that they would be willing to invest in the national economy of Latvia.

The major restrictions on funding by investment funds are related to the restrictions regarding lending to multi-apartment buildings described in Section 4. As referred to in Section 4.3.3, for the secondary market to function, there are intermediaries (target companies) between investors into and renovators of the multi-apartment buildings needed and these intermediaries must have credit ratings assigned in line with international standards.

For the time being the investment funds working in Latvia (the owners of investment funds are mostly credit institutions in Latvia) have too limited capacity to securely oversee long-term investments in energy service provider's target companies. Most likely that the investment funds will make a gradual entry into the segment of multi-apartment building renovation and energy efficiency increasing alongside development of energy service companies (ESCo) and energy service provider's target companies (SPV) in Latvia.

4.3.6. Services of energy services providers

Energy services activities principles in Latvian multi-apartment buildings sector

The Energy Efficiency Directive requires establishment of energy services market and that small and medium enterprises got access to this market. Provision of energy services to multi-apartment buildings is done by signing EPC.

According to Section 1 of the Energy End-use Efficiency Law[34], EPC is an agreement of an energy service recipient (for instance, multi-apartment building) and energy service provider (for instance, ESCo or municipal energy service company (hereinafter – MESCo)) on implementation of certain energy efficiency increase measures, when the payment for these investments in these measures is made by the achieved energy efficiency increase.

Energy services provision according to EPC must conform to the following principles:

a) The agreement must accurately define the expected final energy consumption and the energy efficiency increase measures guaranteed by the energy service provider.

[34] Energy End-use Efficiency Law; http://likumi.lv/doc.php?id=205247.

b) Energy service provider fully finances the energy efficiency increase measures by its own and/or third party funds (which does not exclude the option that financial sources are also acquired by multi-apartment building owners, but the risk of financing EPC is assumed by energy service providers).

c) The made investments are fully repaid from the energy economy achieved as a result of the implementation of energy service (agreed upon in the agreement).

d) Energy service provider completely or partially assumes the financial, technical and commercial risks of the project.

e) Agreement must comply with a set of standard provisions approved and publicized by the line ministry in charge (MoE; for the time being, an officially approved agreement sample has not been developed and approved).

The ESCo model has been relatively rarely used for renovation of multi-apartment buildings in EU member countries. Broader use of EPC is seen in renovation of public buildings in Germany.

The information further provided in the text is based on the opinion of LLC Renesco (ESCo).

According to EPC, energy service provider is obliged to provide:

- Heating, hot water and ventilation (elimination of mould and excessive humidity) services.
- That heating, hot water and ventilation utility systems are functioning throughout the entire agreement period.
- Temperature in the interior premises of building apartments during the heating season in accordance with a defined daily schedule (18^{o}C – 22^{o}C), permissible boundaries for the temperatures in interior common rooms are defined separately.
- The minimum hot water supply temperature 50+/-2^{o}C.
- Buildings renovation in accordance with terms agreed upon by the contractual parties (expense items), in line with Latvian legislation.
- Constant basic tariffs for heating and hot water throughout the agreement, in line with the tariff adjustment criteria established in the agreement (see text below).

Apartment owners pay the energy service providers by a basic tariff (separately for heating and hot water), comprised by the following parameters:

- Energy consumption of the building prior to the increase of energy efficiency (MWh/yr).
- Regulatory approved heating energy tariff (EUR/MWh).
- The average outside air reference temperature.
- The average interior premises reference temperature.
- Total heating apartment area.
- Average number of months in a heating season per year.

The base tariff of energy services provider is adjusted during the heating season each month in accordance with the temperatures of the exterior air and heating energy tariff changes during the heating season.

EPC concluded by ESCos in Latvia are trilateral agreements, where the contractual parties are clients (SoAO), ESCo and building managers. ESCo concludes an individual loan agreement with the financing party (credit institution) on granting funding for the renovation of multi-apartment buildings.

The payments flow from apartment owners to energy service provider is carried out by means of a house manager.

In accordance with the current EPC practise, the main contribution of the energy service provider is to assume the commercial risk, also providing that the energy efficiency and heating energy supply services provided during the agreement conform with the heating energy bases tariff in accordance with the above-mentioned tariff adjustment provisions (i.e., in case during the entire EPC activities the exterior temperature and heating energy tariff were the same, then, after the accomplishment of the energy efficiency increase measures, individuals would not have to pay more for heating and hot water than prior to these energy efficiency increase measures were done).

Therefore, energy services are good for multi-apartment building owners, who are willing to live in a house that has utility mains in order, in an acceptable comfort level, at a reasonable fee for heating energy (the amount of payments prior to building's renovation, which grows in accordance with the heating energy tariff growth) and who are not capable or willing to handle building's renovation and maintenance on their own (or the building manager does not have an appropriate professional experience). Meanwhile multi-apartment building owners are exposed to risks that the overall payment for the provided services might considerably increase in case heating energy tariffs grow, because apartment pays to the building for energy consumption that it had prior to the increase of energy efficiency. In such a situation the owners have limited options to keep the growth in expenses down.

Section 4.2.2 says that energy efficiency increase projects have a long investment payback period and they are not cost effective without funding by grant. Therefore the EPC business model is based on the assumptions that a grant is available for funding of renovation of multi-apartment buildings, and the heating supply tariffs will be constantly growing during the agreement (in some agreements the expected tariff growth tempo per year is 6%). The energy service provider is the one that benefits from the tariff growth, as service recipients respectively have to pay the basic tariff and tariff increment. Therefore energy services providers will find municipalities with relatively higher heating supply tariffs more attractive.

Apart from the positive, EPC also has some negative features (that can be eliminated):

- Both energy services providers (current and potential), and the EBRD representatives interviewed by the Assessment Authors confirm that EPC activities according to the current procedure did not enhance energy saving on individuals' part. The payment for heating energy did not depend on the behaviour of individuals, and also, EPC had strict requirements to individuals with respect to buildings operation (for instance, during the heating season windows could not be open for more than 15 minutes a day). The difference in understanding by the energy service recipient and the energy service provider on building's operational requirements causes misunderstanding.
- The EPCs concluded by now are relatively complicated and hard to understand for apartment owners without professional knowledge. Although EPC agreement includes information about the energy service provider's cash flows estimate, it does not provide a sufficiently clear and detailed picture of the actual benefits of individuals from the increase of energy efficiency, the energy services provider's benefit and the

justice of the proposed schemes, or the division of benefits between apartment owners and the energy service provider.

- Although in theory the energy service provider assumes the energy efficiency increase and heating energy supply risk, sharing of this risk partially occurs between the energy service provider and the building manager. According to the EPC used in Latvia by now, energy service payments are collected by building managers and thus assuming the debtor's debt risk. And, heating, hot water and ventilation systems maintenance are part of house management functions, which in practice causes conflicts between the energy service provider, the building manager and the individual (individuals have used, over a period of many years, to receive services from the building's manager, therefore the heating supply issues within the ESCo's competence are still handled by means of these house managers). For these and other reasons, Renesco has established a house management company LLC Renesco Managers.
- Energy services providers are interested in increasing profit, disconnecting from the centralized heating supply system and constructing a local heating source. Thus, the daily necessary heating energy is provided by local heating sources, but during cold time the building purchases heat energy from centralized heating supply systems. It has negative effect on other centralized heating supply consumers, as they subsidise the peak load costs of the heating source, which exceeds the approved heating supply tariff costs.

Solutions for the aforementioned problems are provided in the text below.

Energy services providers in Latvia

At the disposal of the Assessment Author's, there is information about one energy services provider in Latvia: LLC Renesco (previously known as LLC Invesco). Also to be mentioned, Salaspils centralized heating supply company LLC Salaspils Heating. This company in cooperation with the LLC "Ēku saglabāšanas un energotaupības birojs" (BP&ESB) are working on building a MESCo, aiming at providing integrated services throughout the heating energy production and consumption chain (heating energy consumers, heating energy distribution, transmission and production).

Thus, the only ESCo providing energy services and participating in the programme of multi-apartment buildings energy efficiency increase of the 2007 – 2013 EU programming period as the authorized representative of apartment owners, was LLC Renesco. LLC Renesco has concluded an EPC with 15 multi-apartment buildings in Cēsis, Valmiera and Sigulda (also including agreements concluded by LLC Invesco; both companies belong to the same owners).

Information about projects implemented by LLC Renesco is provided in Table 18.

Table 18 Projects for energy efficiency increase in multi-apartment buildings implemented by LLC Renesco in 2009-2011

Address	Investment expenses without VAT (EUR)	ERDF grant (EUR)	Grant proportion	Loan interest rate	Year of principal repayment
Valmiera, Gaujas 13	150 500	46 801	31%	EUR 6M LIBOR + 4%	2029
Cēsis, Kovārņu 31	409 665	125 809	31%	EUR 6M LIBOR + 4%	2029
Cēsis, Viestura 10a	260 479	89 595	34%	EUR 6M LIBOR + 4%	2029

Cēsis, Vilku 5	273 674	97 965	36%	EUR 6M LIBOR + 4%	2027
Cēsis, Saules 17	264 276	90 377	34%	EUR 6M LIBOR + 4%	2027
Cēsis, Caunas 6	344 411	105 726	31%	EUR 6M LIBOR + 4%	2029
Cēsis, Viestura 8a	359 950	143 004	40%	EUR 6M LIBOR + 4%	2029
Sigulda, Stacijas 28	290 014	130 516	45%	EUR 6M LIBOR + 4%	2028
Sigulda, Kaijas 6	388 495	174 130	45%	EUR 6M LIBOR + 4%	2028
Cēsis, Zirņu 11	271 692	111 055	41%	EUR 6M LIBOR + 4%	2028
Cēsis, Zirņu 17	290 840	111 727	38%	EUR 6M LIBOR + 4%	2028
Cēsis, Zirņu 21	231 117	103 100	45%	EUR 6M LIBOR + 4%	2028
Cēsis, L.Paegles 19a	422 636	178 000	42%	EUR 6M LIBOR + 4%	2028
Rīga, Mastu 8/1	277 021	113 000	41%	EUR 6M LIBOR + 4%	2028
Cēsis, Vaives 4	461 346	215 000	47%	EUR 6M LIBOR + 4%	2028
Total:	**4 696 117**	**1 835 806**			

Remarks:
1. Include projects implemented by LLC Renesco and LLC Invesco (both companies have the same owners).
2. EPC term for all projects is 20 years.
3. The payback period of loan principal is 18-20 years. Grace principal period is 0 years. Total amount of loan is EUR 3 089 002.
4. Lender JSC Citadele banka. Pledges: commercial pledge of companies assets and financial pledge of bank's accounts.

Source: Assessment Authors, based on the information provided by LLC Renesco

There is data at the disposal of the Assessment Authors about a multi-apartment building in Valmierā, Gaujas iela 13. The estimated total investment payback period of this building at constant prices to ensure heating services is 17 years, and to ensure hot water – 23 years.

When it started multi-apartment building renovation, Renesco faced problems to raise funding of credit institutions for EPC agreement purposes, as the company, according to the opinion of banks, had insufficient own capital in terms of credit collateral, with relatively long loan repayment terms (up to 20 years).

By involving financial instruments of foreign partners from the Netherlands (mezzanine loan for the increase of own capital and loan guarantees from the Netherlands International Homeownership Guarantee Fund), Renesco managed to make a deal with JSC Citadele banka on lending to multi-apartment building renovation. These financial instruments got involved upon the initiative and private contacts of company's officials.

AS Citadele banka is not among the leading banks on the multi-apartment building renovation lending market, but their eye was caught by market testing of this product. ESCo was selected as one of the pilot projects, as the bank senses opportunity of this scheme in Latvia. Largely it can be explained by the bank's current experience dealing with house managers and Renesco's relatively high professionalism in renovation and energy efficiency increase matters. A trustworthy cooperation partner is what a bank needs, one who helps easing loan administration costs and credit risks (mainly construction risk).

Based on the specific market situation changes in the Netherlands, mezzanine and loan guarantees financial instruments are no longer available to Renesco. Thus, the company cannot make additional loans due to the capital adequacy requirements established for credit institutions, and the company is interested in building a multi-apartment building renovation secondary market in Latvia and EBRD offered financial products (the current loan refinancing).

Renesco believe that the minimum renovation programme with selective energy efficiency measures is not a sustainable solution in the situation of Latvia, as it is characteristic for its

buildings to have high degree of wear of structural and utility systems. Thereby, the minimum programme only postpones the solving of the problem by 5 – 10 years instead of actually solving it. This is the reason why for all the aforementioned fifteen Renesco objects the integrated energy efficiency increase programme was selected, attaining after renovation the annual heat demand for heating 70 - 90 kWh/m^2/yr. The optimum investments for multi-apartment building's integrated renovation are 150 – 170 EUR/m^2.

Regarding selection of the optimal support model for the increase of energy efficiency of multi-apartment buildings, Renesco were sceptical about increasing the co-funding by grants, as it tempts into ungrounded inflation of the construction operations prices. A lot more effective solution, according to them, is reduction of grant funding, meanwhile lowering long-term interest rates. If a grant amounting to 35% of the project costs is offered, then the optimal loan project rate should be 2%, and the maximum acceptable interest rate – 3%. With these provisions failed to meet, implementation of integrated multi-apartment building renovation is not feasible, and the minimum renovation programme has to be selected instead of it.

Taking into account the long EPC term (20 years), Renesco does not resort to the decision making majority threshold for a community of apartment owners (50% + 1 vote), established in the Law on Apartment Owners. The minimum requirement is 70% of apartment owners voting pro conclusion of an EPC.

Just like credit institutions and house managers, Renesco believe that renovation of multi-apartment buildings should use the economies of scale effect, batching procurements on construction operations into lots with several buildings in each lot.

The experience of the 2007 – 2013 EU programming period tells that approximately 50% of the authorized persons for the multi-apartment buildings energy efficiency increase programme projects are enterprises (municipalities and private house managers, and LLC Renesco).

The experience of the previous programming period suggests that many other enterprises, not just LLC Renesco, have accumulated considerable experience in increasing the energy efficiency of multi-apartment buildings, and their professional qualification is not lower than that of ESCos.

A lot of house managers, for instance, LLC Rīgas Namu Pārvaldnieks (Riga), LLC Ventspils Nekustamie Īpašumi (Ventspils), LLC Liepājas Namu Apsaimniekotājs (Liepāja), LLC Latio Namsaimnieks (Riga and other cities of Latvia), LLC Valmieras Namsaimnieks (Valmiera), LLC CDzP (Cēsis and Sigulda), LLC Jelgavas Nekustamā Īpašuma Pārvalde (Jelgava) and other companies offer a one stop agency services for renovation of multi-apartment buildings of and improvement of the energy efficiency of them, which encompasses the full cycle – from preparing the technical documentation and to organizing and supervising construction operations.

4.3.7. Analysis of factors affecting availability and price of financial resources

The following are major factors that determine availability and cost (loan interest rates) of the financial resources:

- Credit risks.
- Loan administration costs.

- Availability and cost of financial resources when lending.
- Profit of credit institutions.
- Credit risk security (collateral and guarantees).

The loan interest rate consists of two components: variable component (mostly EURIBOR 3 or 6 months rate) and fixed component (stays unchanged for the term established by loan agreement): credit risks, loan administration costs and profit of the credit institution.

The structure and calculation methodology of the fixed component of the loan interest rate is considered restricted access information that was not available to the authors of *Ex ante* Assessment. The authors of *Ex ante* Assessment inquired with three credit institutions about the interest rate structure of loans for renovation of multi-apartment buildings, but were declined the answer.

Credit risks

Credit risk is the risk of the borrower (SoAO) defaulting on its credit obligations against the lender (credit institution) and borrower's pledged assets being insufficient for meeting the credit institution's claim in the event of borrower's default.

Despite the fact that the purpose of the multi-apartment renovation loans is to increase energy efficiency of the buildings and asset value, the banks do not treat them as investment loans, but consumer loans. The low return on the capital investments in the multi-apartment buildings already discussed in the previous sections is the reason behind it. The banks take into account that repayment of the loan could require increasing of the apartment management fee once the renovation of the building is completed. Therefore the banks do not apply standard credit risk assessment methodology to multi-apartment renovation loans when establishing the credit rating of the borrower and value of the collateral.

Each loan is examined separately and communities of apartment owners are viewed as small-scale clients. The banks work with two types of clients: SoAO and house managers that are authorised to act on behalf of the community of apartment owners (ESCo is a different case). Upon comparison of the two groups of clients the banks prefer to work with enterprises provided the house manager is capable of providing professional building management services, there is a separate cash flow for each building and there are no unjustified cross-subsidies among the multi-apartment buildings (i.e. tenants of one house have been paying for the management services of another house for a protracted period of time).

The enterprises, compared to SoAO, have more qualification and experience in management of the buildings and increasing of energy efficiency. SoAO cash flow is smaller, it can provide less liquid collaterals. The enterprise, on the contrary, can provide the required funds should any of the multi-apartment buildings had short-term liquidity problems. For the reasons outlined above the loan interest rates are higher for SoAO than enterprises.

It is often that the banks conclude tri-partite loan agreements with SoAO and also house manager resulting in the house manager being involved in the transaction (despite SoAO being the applicant), whereby the manager acts like intermediary for loan payments.

In the interviews carried out by authors of *Ex ante* Assessment, the credit institutions identified the following major credit risks for increasing of energy efficiency of multi-apartment buildings:

- Social and economic risks.
- Liquidity risks.
- Construction risks.

Social and economic risks are related to long-term paying capacity of population during validity of the loan agreement. The social and economic risks include income level of the household's budget, location of the building, migration tendencies (domestic and international migration), unemployment rate, employment options, a.o. factors.

Due to the aforementioned risks the credit institutions do not feel safe to investment evenly throughout Latvia. The banks are mostly interested in the cities of national importance. Besides, the geographical lending split depends on the branch network of the credit institution: the banks with less developed branch networks can service fewer territories. Hence, the geographical location of the multi-apartment house influences the loan interest rates.

Due to the social and economic risks the banks refuse to lend in scarcely populated territories. For example, there are only a few employers in the town providing work places for population and banks have to examine not only the creditworthiness of multi-apartment building, but also the business outlook of these employers.

Liquidity risks are related to the collaterals functioning as security for the issued loans. The banks do not conclude a loan agreement with every apartment owner to secure the collateral of the loan and do not register mortgages. This was the practice used by HIPO when lending for renovation of multi-apartment buildings.

The credit institutions use the cash flow of the multi-apartment building as the loan collateral (by demanding to open a current account with the bank) and assume that apartment owners will make their loan payments on time. Therefore the banks conclude loan agreements only with those communities of apartment owners where the percentage of debtors of the total number of apartment owners has not exceeded 5% within the last 12 months. Apart from that, the multi-apartment buildings may not have accumulated long-term debts that may serve as the reason to refuse a loan.

To safeguard against the credit risks, the credit institutions ask for greater involvement than 50% +1 vote of the tenants in decision taking. At least 2/3 of the apartment owners must vote in favour of the loan.

The aforementioned collaterals are not enough to safeguard the banks against long-term social and economic risks, therefore the credit institutions need state guarantees (see below in the text).

The capital adequacy risk of enterprises (house managers and ESCo) also falls into this group of risks. The risk ensues from the loan transaction structure the credit institutions have applied.

There are loan agreements where the contracting parties are credit institution and SoAO, but these are outnumbered by tri-partite agreements with the contracting parties of SoAO, house manager and credit institution. Despite the final recipients being the community of apartment owners, the obligations arising from the loan agreement are entered into the balance of enterprise as long-term debts. It results in the capital adequacy problem for the enterprises as, pursuant to the effective regulatory enactments governing credit institutions, the granted loans must be in proportion to the equity capital of the borrower.

The credit institutions usually establish several capital adequacy requirements: ratio of equity capital and sum total of the assets (>= 0.2), EBITDA and borrowed capital (>=5), a.o. Application of capital adequacy requirements is restricted by fact that only for a few house managers it is possible to establish the credit rating in line with credit risk assessment procedures of banks. Due to the capital adequacy requirements put forward by credit institutions many house managers find it difficult to increase the number of buildings to be renovated since the banks refuse to grant new loans.

This is a major problem that must be taken into account when elaborating FI, the more so as the portion of enterprises among applicants of energy efficiency increasing projects reached around 50% in 2007 – 2013 EU Funds programming period.

Construction risks are linked to implementation of the construction / energy efficiency project. The projects often encounter various practical problems related to organisation of the procurement, construction monitoring and other issues, therefore the banks prefer to co-operate with professional partners. The banks hire professional experts for evaluation of the submitted documents (energy efficiency audit, technical project, construction contract, a.o.) and control of construction works.

Loan administration costs

The major problem of the credit institutions regarding administration of loans is lack of standardised lending product that substantially increases the loan administration costs and may result in the loan being refused.

Another significant factor affecting administration costs is the procedure for granting of loans to multi-apartment buildings and conclusion of the loan contract. It may take a year because of the following:

- Passing of SoAO decision about renovation of the building and taking a loan from credit institution (including its participation in EU Funds activity with public financing). There have been cases when SoAO had to pass the decision several times, because LIAA requirements towards the vote of the owners (50% + 1 vote) are less stringent than requirements of credit institutions (2/3 up to 75%).
- Drafting of the required technical documentation and organisation of construction procurement. The procurement procedure for construction work is a time-consuming process that may take up to 3 months. The procurement procedure may end with no results and announcement of new tender. One of the reasons why the procurement procedure ends with no results, is the mark-up on the contract price offered by tenderer, compared to the budget for renovation construction work approved by SoAO vote. Moreover, the credit institution may refuse to approve the building contractor chosen by procurement committee (because of information about its past economic activity at the disposal of the credit institution) or reduce the maximum costs of construction work EUR/m^2. Should anything of the aforementioned happen, a new procurement must be organised and SoAO has to pass decisions several times on the changes to energy efficiency increasing project of the multi-apartment building.
- Due to individual assessment of the credit risks in the loan reviewing process the credit institutions may alter the requirements towards the borrower what the potential

borrower could not have known earlier (for example, information about income, age, employment of apartment owners, a.o.). The representatives of house managers have highlighted the problem as it enlarges the administrative costs for both parties involved.

In addition, the credit institutions are forced to carry out the functions they should not be doing, like administration of apartment owners' debts – a responsibility of house managers.

The loan administration costs are partially covered also by loan handling fee that may reach up to 1.5% of the loan amount.

The credit institutions are of the opinion that state and local governments have a significant role to play in reducing of administration costs and construction risks. The state and local governments should help the credit institutions to alleviate the administrative burden of such loans.

Also the complicated and uncertain recovery of bad loans prevents more active lending and affects the interest rates.

Availability and price of financial resources, payback period of loans

The credit institutions of Latvia have no problems with availability of the financial resources. There are quite many credit resources available to the banks that they would like to on-lend, therefore the banks are not interested in borrowing additional long-term credit resources from international financial institutions or Altum.

Although the credit institutions hold a view that maturity of loan principal should not exceed 15 years, the banks, if required, may grant a loan for 20 years.

The credit institutions acknowledge that there are no grounds to increase the fixed interest rate after expiry of the term for which it was established provided the credit risks have not increased (i.e. the payment discipline is in compliance with loan agreement). Nevertheless, the house managers have quoted instances when, despite impeccable payment discipline, the credit institutions would have liked to increase the fixed interest rate.

Loan guarantees

Initially the credit institutions were lending to renovation of multi-apartment buildings without additional security. In the course of time the credit institutions came to the conclusion that large-scale lending to multi-apartment buildings required state guarantees. The underlying idea is to have a guarantee against long-term social and economic risks.

In response to the request of the credit institutions the state of Latvia made amendments to the regulatory enactments. The loan guarantees are available to the credit institutions as of 2013.

LGA issues the loan guarantees based on the Cabinet Regulation No 997 dated 26 October 2010 Regulations on Guarantees for Increasing of Competitiveness of Business Operators and Eligible Co-operative Unions Providing Agricultural Services. The guarantee covers 80% of the loan amount.

In year 2013 and 2014 LGA granted a total of 133 guarantees. The loan guarantee premium is 0.65% per annum on the outstanding balance of the guarantee (renovation projects of multi-apartment buildings are considered as non-commercial projects). The premium is paid by

borrowers (owners of multi-apartment buildings). The maximum maturity of the guarantee is 10 years (i.e. it is below the average loan principal maturity).

The credit institutions are of the opinion that LGA guarantees are not sufficiently liquid, because the provider of guarantees is a state-owned company and not the state of Latvia. For the guarantees to be considered 100% liquid, they must be included in the long-term financial commitments of the government based on the Law on Budget and Financial Management.

Since the credit risks differ for every multi-apartment building, the credit institutions prefer individual loan guarantees to loan portfolio guarantees. The credit institutions are open to the possibility of not requesting loan guarantees in economically prosperous places, mostly Riga City.

Funding model proposed by Latvian credit institutions

The credit institutions of Latvia are interested to lend to the energy efficiency increasing projects of multi-apartment buildings on the following terms:

- Indirect FI must be used for financing of multi-apartment buildings, without involving Altum. DFI extends grants and loan guarantees based on the co-operation agreements concluded with the credit institutions.
- The loan interest rates must be established in line with market requirements and state shall not interfere with regulation of the interest rates (i.e. shall not subsidise them).
- The payback period of the loans is up to 15 years with the option to prolong up to 20 years, but the loan interest rate is fixed for no more than 5 years.
- The grant co-financing must be from 30% - 50% of the total project expenses.
- DFI must inform the public and owners of multi-apartment buildings promoting their involvement in the programme for increasing of energy efficiency of multi-apartment buildings.
- Entity authorised by SoAO shall submit the project applications to the credit institution for obtaining a loan (before that the project applications are to be submitted to DFI to have the opinion on the technical documentation of the project).
- The state (DFI) will provide state guaranteed individual loan guarantees of at least 80% of the principal amount of the loan (and not multi-apartment building loan portfolio guarantee) for a term compliant with loan principal maturity.

The funding model proposed by Latvian credit institutions does not make funding available for some segments of the multi-apartment insulation projects with high energy efficiency and adequate construction costs (not financed at all or funding costs are so high that no payback of the project is attained in 20 years), like:

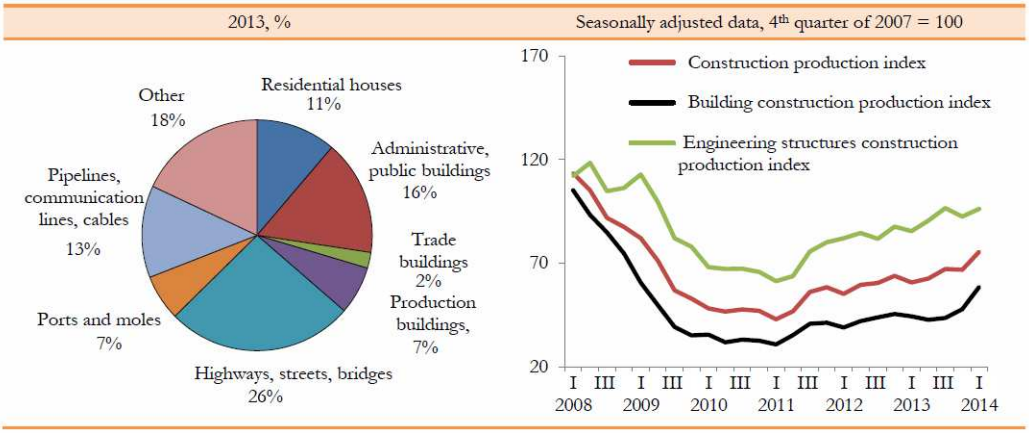
- Buildings in regions (social and economic risks – their assessment is encumbered);
- House managers that fail to meet the capital adequacy requirements, because they have implemented a large number of building insulation projects;
- Buildings with a small number of apartments as the risk concentration is increased.

4.3.8. Analysis of construction industry

4.3.8.1. Capacity assessment of Latvian construction industry

The construction industry records a vivid growth after the downslide experienced during economic crisis from 2008 to 2011. In 2013, according to CSB data, the production of construction materials increased by 6.9% compared to 2012. In year 2013 the construction output of residential houses reached EUR 186.7 million demonstrating a 57.9% growth compared to year 2012, whereas within 9 months of 2014 it was EUR 180.0 million – a growth by 41.6% against the respective period in year 2013. The repair works done in buildings with three and more apartments in 2013 amounted to EUR 75.0 million - a 77.8% increase compared to 2012; whereas in 9 months of 2014 such repair works accounted for EUR 48.3 million remaining unchanged compared to the respective period in 2013.

Although the construction output levels have been continuing the return to a relatively fast growth over the past couple of years, they are still behind the pre-crisis peak. The construction cost index started to plunge in year 2008 hitting the all-time low in 2010. As of 2011 it has been regaining the momentum (see Picture 177).

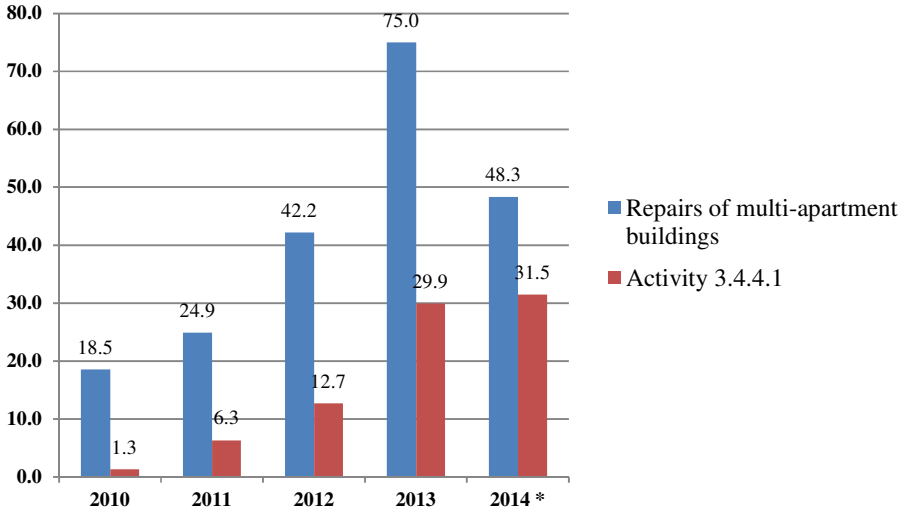


Picture 17. Breakdown of construction outputs in 2013 and dynamics of cost indices from 2008 to 2014.

Source: MoE Report on the Economic Development of Latvia, June, 2014.

In year 2013, according to CSB data, the repairs made in apartment buildings consisting of three and more apartments amounted to EUR 75.0 million. Whereas, in year 2013, the total eligible expenses under Activity 3.4.4.1. were EUR 29.9 million or 39.9% of the repairs made in the buildings of three and more apartments (see Picture 18). For the time being the percentage for year 2014 cannot be stated accurately since the data are available only for 9 months. Picture 18 shows that in year 2014 the total construction output of multi-apartment buildings exceeded the total eligible expenses consumed under Activity 3.4.4.1.

The development trends of the construction industry from 2010 to 2014 suggest that the overall capacity of the construction sector would be sufficient to carry out all the construction works required in 2014 – 2020 EU Funds programming period, even in view of the double amount of the buildings to be renovated compared to 2007 – 2013 EU Funds programming period.

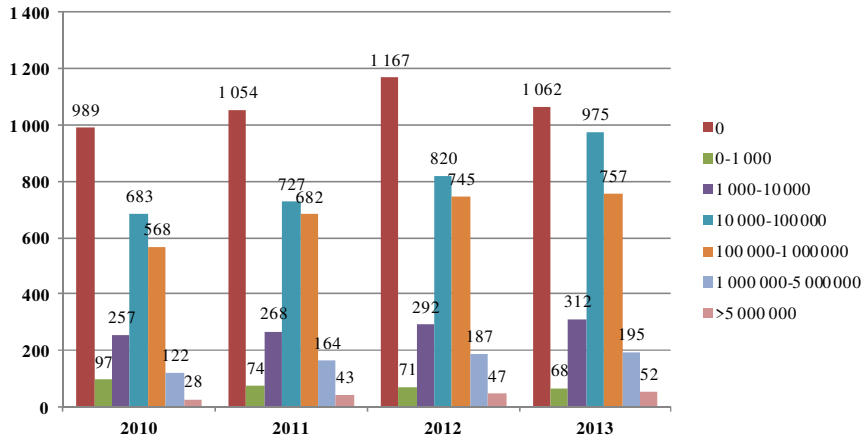


Picture 18. Repairs in multi-apartment buildings and investments made under Activity 3.4.4.1., years 2010 -2014, EUR, million

Notes:
1. CSB data about repairs in multi-apartment buildings include houses with 3 and more apartments.
2. Information about Activity 3.4.4.1. is given as at 12 February 2015.
3. Turnover data on repairs in multi-apartment buildings for 9 months of year 2014, for Activity 3.4.4.1.for 12 months.
4. Investments under Activity 3.4.4.1. include the disbursed ERDF financing and private eligible expenses.

Source: Authors of Ex ante Assessment, based on CSB and MoE data.

The majority of the companies registered in the building construction sector record EUR 0 turnover in their annual reports (in year 2013 there were 1062 such companies or 31%). The turnovers of the companies active in the building construction sector range mostly from EUR 10 000 to 100 000 (975 companies or 29%) and from EUR 100 000 to EUR 1 million (757 companies or 22%). In year 2013, there were 195 companies that had a turnover from EUR 1 million to EUR 5 million (6% of the total number of construction companies) and 52 companies whose turnover exceeded EUR 5 million (1.5%). Over the last 5 years the number of active companies has increased in all turnover groups, except for below EUR 1 000 turnover group (see Picture 19).



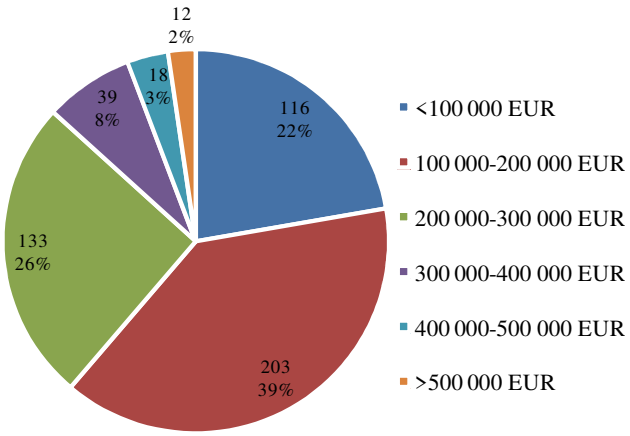
Picture 19. Dynamics of companies working in building construction sector by turnover groups (EUR) 2010 -2013

Source: Authors of Ex ante Assessment based on the State Revenue Service information from annual reports of the companies

Most of the turnover of the building construction sector (in year 2013 – 56.0% of the total turnover of the sector) comes from tax payers whose turnover exceeds EUR 5 million. The tax payers with a turnover from EUR 1 million to 5 million account for 24.9% of the total turnover of the building construction sector, tax payers with a turnover from EUR 100 thousand to EUR 1 million – 16.6%, but tax payers with a turnover up to EUR 100 thousand – only 2.5%.

4.3.8.2. Description of market for increasing of energy efficiency of multi-apartment buildings

The total project expenses of the majority of the projects completed as at 2 February 2015 (in total 521) under Activity 3.4.4.1. of 2007 - 2013 EU Funds programming period ranged from EUR 100 000 to EUR 200 000 (203 projects or 39%). There were 133 projects or 26% whose expenses ranged from EUR 200 000 to EUR 300 000. Only for 12 projects or 2% the expenses exceeded EUR 500 000 (see Picture 20).



Picture 20. Breakdown of the projects completed under Activity 3.4.4.1. by total project expenses

Notes:
1. As at 2 February 2015 there were 521 completed projects.
2. Expenses of Activity 3.4.4.1. include eligible and non-eligible expenses.

Source: Authors of Ex ante Assessment

For analysis of the projects completed under Activity 3.4.4.1. by submitters of the projects (number of implemented projects, legal status) see Section 2.3.1.1.

The contract award notices regarding energy efficiency increasing projects published by the Procurement Monitoring Bureau show that on most occasions the construction contracts were awarded to relatively small construction companies (of average annual turnover below EUR 5 million). The procurements organised by two house managers – LLC Ventspils nekustamie īpašumi (the largest quantity of project applications under Activity 3.4.4.1.) and LLC Valmieras namsaimnieks (the second largest quantity of project applications under Activity 3.4.4.1.) are described below.

From 2010 till 2014, under Activity 3.4.4.1., 13 companies have been awarded contracts in the procurements organised by LLC Ventspils nekustamie īpašumi each of the companies doing construction work in 1 to 9 objects. LLC Vindbūvserviss was awarded the largest quantity of objects (9). In year 2013 the turnover of LLC Vindbūvserviss was around EUR 750 000 and number of employees - 23.

From 2010 till 2014, 16 companies have been awarded contracts in the procurements organised by LLC Valmieras namsaimnieks. LLC R.K.C.F. Renesanse was awarded most of the contracts (7). In year 2013 the turnover of LLC R.K.C.F. Renesanse was EUR 4 million and number of employees - 58.

At the same time out of 10 turnover-wise largest companies of the construction industry (turnover above EUR 37 million in year 2013, including companies of various construction sectors) only RBSSKALS Group (turnover of EUR 58 million in year 2013, ranks the 6th on the list of building contractors by turnover figures) has done the works for energy efficiency increasing of multi-apartment buildings in implementation of 4 projects during 2007 – 2013 EU Funds programming period.

It leads to the conclusion that these are mostly small and medium construction companies that work in the market of multi-apartment renovation with only a tiny number of large construction companies getting involved.

4.3.8.3. Major problems in construction sector

Quantitative survey of Latvian house managers highlights that many have had negative co-operation experience with the building contractors renovating multi-apartment buildings. The major problems of the construction sector are: low quality construction work, non-compliance with deadlines of the works, insufficient capacity of the building contractors, shortage of experts and workforce, low quality construction monitoring.

On several occasions within Activity 3.4.4.1., due to low quality construction work and overdue deadlines, the contracting entity had had to terminate the contract with the building contractor and publish a new call for tenders.

Problems of such nature are more characteristic of SoAO tenders than tenders organised by house managers (enterprises). The house managers (for example, the two municipal companies mentioned above) have more experience of management of renovation projects of multi-apartment houses.

It is often the case that construction contracts are awarded to small building contractors finding it difficult to provide the required quality and meet the deadlines. To tackle the problem, the representatives of the parties concerned suggest batching of the buildings in lots that would reduce the construction costs on the account of increased renovation volume. Such procurements could establish higher qualification requirements towards the tenderers, including ask for the performance guarantee of the tender and construction work that was not practiced before.

The representatives of the parties concerned suggest that MoE published a list of the 'bad building contractors' with whom the contracting entities have had a negative co-operation experience. The regulatory enactments of the Republic of Latvia do not provide for such a possibility, except for termination of the contractual relations with the building contractor or application of fine for breach of the contract obligations when such information can be made public.

To prevent dishonest building contractors from participating in the tenders for renovation of multi-apartment buildings, the contracting entity can include in the tender dossier criteria for selection of tenderers barring the tenderers from submitting a tender if the tenderer has had the contractual relations terminated during the last 3 years.

On its behalf MoE can provide publicly available information about the participants to the construction process involved in the renovation of multi-apartment buildings by giving the names of the building contractors, supervisors and construction objects. MoE can also inform of the cases when the contracting entity has terminated the contractual relations with the building contractor due to default on the obligations of the procurement contract.

4.4. Analysis of market failures

This section is a summary of the market failures identified based on the analysis of the energy efficiency increasing measures for the multi-apartment buildings and demand and supply of the financial resources.

4.4.1. Suboptimal investment situations

The previous sections have identified that suboptimal investment situations in the segment of multi-apartment buildings occur due to the following:

- Long payback period of the energy efficiency increasing measures of the multi-apartment buildings (sometimes even exceeding 20 years) that limits the financing of the renovation of the buildings and increasing of energy efficiency from savings on heating energy.
- Scarce paying capacity of the owners of multi-apartment buildings that makes it difficult to set aside a fraction of their household budgets for the renovation of the multi-apartment building and increase the monthly apartment management fee. Moreover, the households are very cautious regarding taking on any extra commitments, especially long-term loan commitments.
- High degree of wear of structural frameworks and engineering systems of the multi-apartment buildings of Latvia adding to the costs of building renovation.

The representatives of the owners of multi-apartment buildings have voiced the terms (as regards grant financing and reduced loan interest rates) on which they want to implement the energy efficiency increasing measures of multi-apartment buildings very clearly.

In the presence of suboptimal investment situations the capital investments in increasing of the energy efficiency of multi-apartment buildings won't be made at all or will be made only in immediate repairs (considering the restricted possibilities of the multi-apartment owners to amass private financing for improvement of the buildings) if the owners of multi-apartment buildings are not granted financial support. Hence, the owners of multi-apartment buildings are likely to undertake only the most indispensable building renovation and energy efficiency increasing measures failing to meet the energy efficiency targets established by the government of Latvia by year 2020.

4.4.2. Information asymmetry and scarcity

Information asymmetry and imperfection occurs when the credit institutions are faced with the social and economic risks, liquidity risk and construction risks inherent to the lending to the energy efficiency increasing projects of multi-apartment buildings.

Since the credit institutions are not capable of evaluating these risks adequately, they either refuse to lend to the energy efficiency increasing projects of the multi-apartment buildings or lend on increased interest rates.

The social and economic risks form the major credit risk group (paying capacity of tenants during the loan agreement) that the credit institutions cannot forecast credibly.

4.4.3. Scope of projects and transaction costs

The average costs of the energy efficiency increasing measures of multi-apartment buildings are insignificant and don't exceed EUR 200 000. Lack of project standardisation and insignificant volumes increase the loan administration costs and dampen the initiative of the credit institutions to lend for improvement of energy efficiency of multi-apartment buildings. Whereas, in cases where house managers have acquired experience and trust of the banks in project implementation, the enterprises encounter capital adequacy problems.

The abovementioned problems can be resolved by means of standardized project and loan product.

4.4.4. Lack of capacity and experience

Lack of experience of the multi-apartment building owners and house managers in renovation of buildings, increasing of energy efficiency and effective management is the major reason behind suppressed lending activity to the energy efficiency increase projects in multi-apartment buildings and upwards loan interest rates. In order to eliminate this market deficiency, the central and local governments should provide the required technical aid to improve the capacity of multi-apartment building owners and house managers, which includes establishment of an energy efficiency centre (see Section 6.3.5.).

4.4.5. Structural market failures

Structural market failures are related to the negative side-effects encountered by the public due to the environmental pollution caused by consumption of heating energy (greenhouse gas emissions). The adverse side-effects of environmental pollution are present in every industry that uses energy resources, including multi-apartment houses.

The authors of *Ex ante* Assessment are of the opinion that reduction of structural market failures would require employing CCFI funds (acquired from trading of greenhouse gas emission quotas) for funding the increase of energy efficiency of multi-apartment buildings from 2015 to 2020 that, in its turn, would amplify FI leverage effect. For the time being no CCFI funding has been assigned for this purpose (see Section 4.3.4.).

4.5. Calculation of financial deficit

The quantitative estimate of the deficit of funding for the increase of energy efficiency of multi-apartment buildings is given in Table 19. The assumptions are explained below the table.

Table 19 The estimate of the deficit of funding for the increase of energy efficiency of multi-apartment buildings (EUR)

Funding deficit (attainment of national energy policy goals in 2020)		Funding deficit (heating energy end consumers, or the total funding deficit)	
Variables	**Values**	**Variables**	**Values**

Primary energy savings (national indicative energy efficiency target)	0.670 Mtoe (7 792 MWh)	Total quantity and area of multi-apartment buildings	38 600 54.4 million m^2
Portion of the energy efficiency target pertaining to multi-apartment buildings	0.023 Mtoe (263 GWh)	Quantity and area of multi-apartment buildings, where cost-effective renovation is feasible	25 000 38 million m^2
Investment volumes required to attain 1 MWh heating energy savings per annum	1 000 EUR	Quantity and area of buildings that potentially could be renovated for energy efficiency purposes	23 500 (94% of 25 000) 36 million m^2 (94% of 38 millions m^2)
Total investment costs (EUR) for attainment of the portion of the energy efficiency target pertaining to multi-apartment buildings	263 million EUR (263 GWh * 1 000 * 1 000 EUR)	Costs of energy efficiency increase measures and other indispensable renovation activities EUR/m^2	150 EUR/m2
Heating energy savings per year per one multi-apartment building[1]	156 MWh	The total financial requirement	EUR 5.4 billion
The total quantity of to be renovated multi-apartment buildings for the attainment of the energy efficiency target	1 700 (263 GWh/156 MWh ≈1 700)	Proportion of buildings, the owners of which are potentially interested in employment of FI	60%
		Total investment costs (actual financial requirement)	3.2 billion EUR (60% of 5.4 billions EUR)[5]
Public (state) funding[2]	177 million EUR	Public (state) funding[2]	177 million EUR
Local government's funding[3]	12 million EUR	Local government's funding[3]	12 million EUR
Private funding[4]	17 million EUR (10 000 EUR * 1 700 buildings)	Private funding[4]	141 million EUR (10 000 EUR per building * 14 100 buildings (25 000 * 94% * 60%))
Funding deficit	**57 million EUR**		**2.9 billion EUR**

Notes:
1. The heating energy saving per one multi-apartment building per annum is taken from Section 4.2.2 where actual heating energy savings were analysed for multi-apartment buildings renovated under Activity 3.4.4.1.
2. The public funding consists of ERDF and national budget financing for 2014 – 2020 EU funds programming period.
3. The local government's funding mostly for drafting of documentation for energy efficiency increasing projects (energy audits, a.o.).
4. Private funding (own resources) is an assessment by experts based on the quantitative survey of management fees and provisions for repairs of multi-apartment buildings and interviews. This funding is mostly meant to cover the costs of the energy efficiency increasing projects at the inception stage of the project.
5. Percentage of buildings whose owners would be interested in using FI (60%) is established by means of the experts' method. The experts' assessment is based on the quantitative survey of the house managers of Latvia (63% of the respondents said that the owners of buildings were interested to participate in the EU co-financed programme for increasing of energy efficiency of buildings; n=114).

Source: Authors of Ex ante Assessment

The estimate of the funding deficit is made based on the assumption that implementation of the national energy policy requires complex energy efficiency increasing measures. For this reason, private funding excludes the loans of credit institutions that would be available to the owners of multi-apartment houses if minimum energy efficiency increasing programme was chosen (see Section 4.2.4). Table 19 demonstrates that proposed attainment of the national energy policy goals by 2020 falls short of **EUR 57 million** for increasing of the energy efficiency of multi-apartment buildings, while the total deficit of funding for the increase of energy efficiency of multi-apartment buildings (from the point of view of heating energy end consumers) is **EUR 2.9 billion**. This deficit can be partially financed by engaging additional public resources (there is no information at the disposal of the authors of *Ex ante* Assessment about availability of additional public funding) or private funding. The private funding (loans from credit institutions and other financial intermediaries) can be attracted through leverage effect and FI implementation.

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

At the moment information about possibilities to raise additional public and private resources for FI in 2014 – 2020 EU funds programming period is not fully available. The currently available pieces of information suggest that sizeable additional financial resources could be raised. The potential sources and amounts of financing are listed below.

5.1. Financing from international financial institutions

During 2007 – 2013 EU funds programming period the international financial institutions (EBRD, EIB, CEB, NIB, a.o.) were not involved in lending to the energy efficiency increasing projects of multi-apartment buildings in Latvia.

Currently the international financial institutions are ready to offer financial products tailored for financing of the energy efficiency increasing projects where Latvian credit institutions cannot offer alternatives.

CEB is the only international financial institution that can lend to DFI without state guarantee implying a smaller maximum loan amount (up to 50 million euros) and slightly lower loan interest rate. Meanwhile, several international financial institutions, like CEB, EIB, NIB, are willing to lend to DFI against the state guarantee. Also it must be taken into account that since international financial institutions usually finance up to 50% of the final amount of the loan, DFI must have at least two sources of financing to on-lend to the final recipients, in this case – multi-apartment buildings.

The minimum loan that EBRD is ready to give to single SPV is EUR 10 million. The maximum loan amount is not established being determined by market situation. Currently EBRD is conducting the feasibility study and has not passed a definitive decision on SPV financing in Latvia. EBRD could start lending in the first half-year of 2015.

5.2. Municipal financing

In view of the activity of the owners of multi-apartment houses during the previous EU funds programming period and maximum number of projects anticipated for EU 2014 –2020 programming period, the municipal funding to the programme for increasing of energy efficiency of multi-apartment buildings could amount to **EUR 12 million** (around twice as much as in the previous EU programming period).

5.3. CCFI financing

The purpose of CCFI is to prevent global climate change, adapt to the climate change consequences and reduce greenhouse gas emission (by implementing energy efficiency improvement measures in the public and private sectors, promoting development and implementation of the technologies using renewable energy resources and implementing integrated solutions for reduction of greenhouse gas emissions). According to CCFI, the resources acquired from sale of Latvia's assigned amount units are transferred to a specific aim in the fields of environmental protection and increasing of energy efficiency, although, in order to reduce the structural market imperfections, CCFI funds should be used also for increasing of energy efficiency of multi-apartment buildings. **The authors of *Ex ante***

Assessment have no information that from 2015 to 2020 CCFI would have earmarked resources for this purpose.

5.4. ERDF financing

The **ESI Funds financing** available for increasing of energy efficiency of multi-apartment buildings under the operational programme "Growth and Employment" in 2014 – 2020 EU Funds programming period is **EUR 176.47 million,** including ERDF financing of EUR 150 million and national budget financing of EUR 26.47 million.

6. Investment strategy of financial instrument

6.1. Analysis of financial instrument alternatives

DFI is being offered as the implementing body of the programme based on the below considerations.

The aim of DFI is to implement the policy of the national economy via state aid and promotional programmes effected either fully or partially by FI or grants. By 1 April, 2015 DFI will incorporate three development institutions: Altum, LGA and Rural Development Fund. The purpose of restructuring is to increase implementation efficiency of aid and development programmes by fostering mutual co-ordination of the programmes, and to introduce one-stop agency for the entrepreneurs. The task of DFI is to complement the operation of the Latvian financial market without distorting competitiveness.

DFI is 100% state-owned joint stock company that was established on 19 December 2013. DFI operates in accordance with the Development Finance Institution Law dated 30 October 2014.

The table below outlines the assessment of the public intervention alternatives that could be deployed in prevention of the market failures identified in increasing of the energy efficiency of multi-apartment buildings (see Table 20).

Table 20. Comparison of the financial instrument alternatives for increasing of energy efficiency of multi-apartment buildings.

Public intervention	General description	Advantages	Disadvantages
DFI guaranties to the loans granted by commercial banks for renovation of multi-apartment buildings	DFI issues guaranties to the lenders of up to 80% of the loan amount provided the loan is granted for renovation of multi-apartment building and complies with the provisions of the programme.	Simple and easily manageable product. All financial market participants are involved and their experience is made use of. It is possible to attain high leverage (multiplier) effect, provided positive return on investments is achieved in implementation of the projects. *It is possible to grant loans to the entities – companies authorised by owners of multi-apartment buildings by reducing capital adequacy requirements.* It is possible to embrace all the existing and potential clients of the credit institutions. The actual funds are disbursed only in the event the client cannot repay the loan.	Support given in the form of guaranty doesn't yield such economic benefits in the implementation process of the projects for the owners of apartments that could compensate for the expenses of renovation and financing over the period of 20 years. Insufficient support to stimulate the demand from market participants. The guaranty instrument may not be sufficient to cover the risks so that a commercial bank would agree to financing of the riskier borrowers, especially in the administrative territories of Latvia with inherent social and economic risks. The instrument doesn't ensure that long-term loans (of up to 20 years) are available.
Public co-financing to the commercial banks to compensate for the first loss in granting the loans for renovation of	The commercial banks establish, co-finance and manage the loan fund for lending to the renovation of multi-apartment buildings. The investment of the public co-financing in the	The participants of the financial market are involved and their experience is made use of. It is possible to achieve high leverage (multiplier) effect provided positive return on	Complicated administration both for DFI and credit institutions *(the commercial banks do not support portfolio guaranties of the loans and would prefer individual guaranties).*

Public intervention	General description	Advantages	Disadvantages
multi-apartment buildings	fund bears the first loss in the amount of 5-10% of the sum total of the granted (disbursed) loans as well as enables decreasing of the loan interest rates and extending the term of fixed interest rate.	investments is achieved in implementation of the projects. It is possible to embrace all the existing and potential clients of the credit institutions.	Achieving of the results of the renovation programme of the multi-apartment buildings depends on interest of the market participants that may turn out to be insufficient. FI alternative may not be enough to cover the risks so that a commercial bank would agree to financing of the riskier borrowers, especially in the administrative territories of Latvia with inherent social and economic risks. The instrument does not ensure sufficiently low interest rate for the riskier borrowers so that economy on heating would offset the renovation expenses and its financing within a period of 20 years.
DFI direct loans for renovation of multi-apartment buildings with ESI Funds and state guaranteed loan	DFI grants long-term loans with a low interest rate (that is fixed for the whole maturity of the loan) for renovation of multi-apartment buildings in line with the provisions of the programme. The usage of EU Funds and covering of the first loss from the public resources, as well as the opportunity of borrowing from international financial institutions, ensure low interest rate.	A relatively simple product. There is an opportunity to attract financing from the international financial institutions to increasing of the energy efficiency of the buildings. A possibility of granting long-term loans with a low interest rate that is fixed for the maturity of the loan. It is possible to grant loans in the whole territory of Latvia through DFI branches and consultation centres.	Despite the low interest rate, the instrument being without the support of the grant, cannot provide the borrowers with substantial benefits from economy of energy that could persuade the sceptical apartment owners of the necessity to renovate the building. The market participants don't reach an understanding on lending for insulation of multi-apartment buildings.
Transfer of the loans of the commercial banks (refinancing) to the public financing once the fixed interest rate period expires	The commercial banks lend for renovation of multi-apartment buildings in line with the provisions of the programme fixing low interest rates for a medium period of time (from 3 to 5 years). At the end of the period a commercial bank may transfer the loans of the programme to DFI that will take them over and ensure the low interest rate until the end of maturity of the loan. The commercial banks continue to service the loans taken over by DFI (DFI takes the loans on its balance-sheet, but authorises the credit institutions to continue with servicing and supervision of these loans).	The participants of the financial market are involved and their experience is made use of. The commercial banks are in possession of medium-term loan resources at low interest rates. It is possible to embrace all the existing and potential clients of the banks.	There is no economic feasibility study done on implementation of such a new, never before used instrument; the required state aid and public resources have not been identified (EU funds cannot be used). There is no guarantee that the instrument would be successful (*the credit institutions have not shown any interest about the instrument*). The transfer of loans is a complicated process involving certain risks for the commercial banks and borrowers as loans with overdue payments cannot be transferred (supervision of defaulters is a non-standard process and overdue loans cannot be included in the standard portfolio intended for sale). Achieving of the results of

Public intervention	General description	Advantages	Disadvantages
			the renovation programme of the multi-apartment buildings depends on the interest of the market participants that is expected to be insufficient without a grant. The instrument does not ensure sufficiently low interest rate for the riskier borrowers so that economy on heating would offset the renovation expenses and its financing within a period of 20 years.

In addition to FI potential implementation alternatives attention must be paid also to payback period of the energy efficiency measures. Based on the completed analysis, it was concluded that the average payback period of the measures for increasing of the energy efficiency was more than 20 years (apart from the costs of attraction of financing). Moreover, with the use of any of the FI alternatives, the borrower would have to pay interest on the attracted financing.

Hence, in order to motivate the owners of multi-apartment buildings to invest in implementation of energy efficiency measures, it is necessary to reduce the payback period of the projects. It could be accomplished by help of grants, repayable grants or loan interest rate subsidies.

The amount of the grant is calculated based on the average costs of the project being EUR 200 000, average saving on heating - 156 MWh per renovated building (see Sections 4.2.2. and 4.5.), heating energy tariff - EUR 60/MWh (including VAT 12%) as well as loan interest rates. The calculation was done for a project with a life cycle of 20 years (saving on heating and repayment of the loan were calculated for a period of 20 years). Summary on the amount of the grant required for the project to be economically feasible (project's IRR > 0), in view of the loan interest rates, is given below:

Table 21. Amount of grant required for the project not to incur losses in view of various loan interest rates

Amount of grant, as % of project's costs	Loan interest rate, %	Amount of grant, as % of project's costs	Loan interest rate, %
25%	2.21%	38%	4.29%
26%	2.35%	39%	4.48%
27%	2.49%	40%	4.67%
28%	2.64%	41%	4.86%
29%	2.79%	42%	5.07%
30%	2.94%	43%	5.27%
31%	3.10%	44%	5.48%
32%	3.26%	45%	5.70%
33%	3.42%	46%	5.93%
34%	3.59%	47%	6.16%
35%	3.76%	48%	6.39%
36%	3.93%	49%	6.64%
37%	4.11%	50%	6.89%

According to Table 21, with a 25% grant, the loan interest rate of the project cannot exceed 2.21%. Whereas, with a 50% grant, the loan interest rate may attain 6.9%. At the same time,

when elaborating the support mechanism, it must be taken into account that on most occasions the loans are applied the variable interest rate already incorporating the probable EURIBOR fluctuations.

Table 22 compares the additional instruments – grants and interest rate subsidies.

Table 22. Comparison of additional instruments for increasing of energy efficiency of multi-apartment buildings

Public intervention	General description	Advantages	Disadvantages
Grants (non-repayable)	A percentage (25%-50%) of the renovation costs of the multi-apartment building is financed by DFI grant given after disbursement of the loan. Since initially the project receives a loan of 50% - 75% of its value, the grant is disbursed afterwards as payment for the invoices issued by building contractor.	From psychological perspective, for the bodies implementing the project the grant seems to be a more attractive type of support, because it facilitates convincing of sceptical apartment owners of the necessity to renovate the building. The technical and financial risks of the projects are being decreased. DFI checks the technical documentation of the project before its implementation (the technical risk of the project is being decreased) and establishes the amount of the grant. In addition to the aforementioned, the financial risk for the inhabitants is diminished as DFI has checked the technical documentation and also established the amount of the grant beforehand.	The grant doesn't stimulate the bodies implementing the project (designers, building contractors) to assess validity of the project's costs that, in its turn, reduces the benefits for the borrowers. The grant doesn't secure a low interest rate for the loan what is essential for viability of the project.
Repayable grants	A percentage (25%-50%) of the renovation costs of the multi-apartment building is financed by DFI repayable grant given after disbursement of the loan. The attained renovation effect is checked once renovation has been completed and one full heating season has come to an end (for example, heat consumption per 1m^2 during the season <70kWh, <80kWh, <90kWh) and, depending on the achieved energy efficiency target, the borrower is either entitled to keep the grant in full or is	From psychological perspective, for the bodies implementing the project the grant seems to be a more attractive type of support, because it enables convincing of sceptical apartment owners of the necessity to renovate the building. The technical risks of the projects are being decreased. DFI checks the technical documentation of the project before its implementation.	The grant doesn't stimulate the bodies implementing the project (designers, building contractors) to assess validity of the project's costs that respectively reduces the benefits for the borrowers. The grant doesn't secure a low interest rate for the loan what is essential for viability of the project. The inhabitants must assume the financial risk of the project as the amount of the grant may be reduced after implementation of the project if the planned heat savings are not achieved, despite DFI having checked the technical documentation of the project before its implementation.

Public intervention	General description	Advantages	Disadvantages
	obliged to make a partial repayment of the grant.		
Loan interest rate subsidies	DFI grants an interest rate subsidy to a loan issued by commercial bank or DFI by fixing a nominal (1%) interest rate for the maturity of the loan.	The subsidy gives a long-term stability to the borrower as it covers the interest rate risks what is especially important during the periods of high (EURIBOR) market rates.	At the time the loan is granted it is impossible to do an accurate calculation of the amount of the public financing needed for the subsidies. It is difficult to establish an impartial loan market rate for each building. The interest rate subsidy is the most inefficient type of support in view of the public expenses and economic benefits for the owners of apartments. The interest rate subsidy is not attractive for the borrower as it is being disbursed over a long period of time. *The Latvian commercial banks are of the opinion that the interest rate subsidies distort the lending market in renovation of multi-apartment buildings and wouldn't promote sustainable development.*

Based on the analysis outlined in this section, the substantiation for choosing of the optimum alternative for public sector intervention in securing of the financing for energy efficiency measures of multi-apartment buildings is given in Section 0.

6.2. Choice of optimum alternative financial instrument

Section **4**. outlines a renovation financing model of multi-apartment buildings as proposed by credit institutions that, in essence, is an indirect FI: the credit institutions grant loans on market interest rates, DFI gives loan guaranties and grants (repayable and also non-repayable). The proposed solution is right according to the credit institutions' viewpoint on risk management and generation of profit. Nevertheless, from the viewpoint of government, the proposed model has the following disadvantages:

- By allowing establishing the loan interest rates on the credit resources market, a balanced development of the regions of Latvia is not promoted and a certain proportion of the owners of multi-apartment buildings will be entirely denied access to the financial resources. The range of the loan interest rates will be enormous with the inhabitants of Rīga City neighbourhood paying, for example, a loan interest rate of below 3%, whereas in Cēsis or Rēzekne – 7.5%. Consequently, people would be 'punished' for living in geographically remote territories that, in its turn, will foster migration to the major cities of the country or abroad.
- The credit institutions do not consider the multi-apartment buildings with low market value apartments, compared to the value of the required capital investments, a target audience for lending.
- The multi-apartment buildings with a small number of apartments have a higher credit risk; therefore their opportunities to obtain loans from credit institutions are restricted.
- Increasing of the loan interest rates impedes improvement of the sustainability of energy efficiency of multi-apartment buildings, necessitates rising of the grant co-financing and reduces the leverage effect. For example, in order the owners of multi-

apartment buildings borrowed with the average total interest rate of 5%, the grant co-financing should reach at least 50% of the total costs of the project. In addition to the aforementioned, increasing of the grant financing doesn't promote rational use of the resources; it rather entails artificial rising of the building costs.

- To ensure attaining of the Latvian energy efficiency targets by year 2020, such FI has to be proposed that would satisfy both parties – credit institutions and apartment owners. In view of the loan interest rates offered on the financial market and opinion of the representatives of the inhabitants (house-managers, municipalities, MESCo), the annual interest rate for long-term loan should be up to 2% + EURIBOR with the grant co-financing of at least 35%, or the current average market rate of ≈5% + EURIBOR with the grant co-financing of at least 50%. Providing of concurrent alternative types of financing solves the problem of availability of finances for energy efficiency projects with a lengthy payback period.

- The recommended measures for prevention of the credit risks and reduction of the loan administration costs are outlined in Table 24.

Table 23. Short-term measures to be undertaken by public sector to reduce the credit risks and administration costs of the loans

Risk/ costs	Description of risk / costs	Measures to be undertaken	Impact of measures on reduction of costs
Credit risks			
Social and economic risks	The credit institutions do not lend to the projects with inherent social and economic risks, or, if they do, the loans are given at increased interest rates (affected by development of entrepreneurship, employment, unemployment level, migration, a.o. factors).	The public sector gives direct loans or state guaranties for the loans to be issued by credit institutions. Availability of the loan guaranties should decrease the loan interest rates (the exact reduction as at the date of release of *Ex ante* Assessment is not known).	High
Liquidity risks	The credit institutions do not lend in the administrative territories where the market value of the real estate (apartment) per 1 m^2 is less than construction costs per 1 m^2. Since the future cash flow and timely maintenance and upkeep payments of the apartment owners constitute the collateral of the loan, the multi-apartment buildings must have as small number of debtors as possible (up to 5% within the last 12 months).	A credit guaranty secured by state is necessary. Availability of the loan guaranties should decrease the loan interest rates (the exact reduction as at the date of release of *Ex ante* Assessment is not known).	High
Construction risks	Various problems related to low quality works have been identified in the construction process (starting already at the energy efficiency audit and leading up to construction works and supervision).	Based on implementation experience of activity 3.4.4.1., MoE (DFI) will elaborate standardised guidelines and documents for all the stages in increasing of the energy efficiency of multi-apartment buildings and will consult the submitters of the projects via DFI Competence centre, when required. DFI Competence centre will perform quality supervision of energy efficiency audits and technical projects.	Medium
Loan administration costs			
Reducing of loan reviewing period	The reviewing of the loan application lasts approximately one year being affected by various bureaucratic procedures, including decisions passed	MoE (DFI) plans to prepare the procedures for the programme for increasing of energy efficiency of multi-apartment buildings that would	Medium

Risk/ costs	Description of risk / costs	Measures to be undertaken	Impact of measures on reduction of costs
	by community of apartment owners.	incorporate actions co-ordinated with the loan examination procedures of the credit institutions. DFI Competence centre will provide the required consultations and client support.	
Standardisation of energy efficiency increasing measures	The credit institutions review each loan application as an individual project what is time-consuming.	Within the framework of the programme for increasing of energy efficiency of multi-apartment buildings, DFI will check the energy efficiency level to be attained by the project, thus the commercial banks will not have to deal with the issue any more when reviewing the loan application.	High
Streamlining of procurement procedure	The procurement procedure is relatively complex and time-consuming (in view of the competence of the owners of multi-apartment buildings), moreover the most commonly applied procurement method (the most economically advantageous tender for the lowest price) doesn't promote neither timely and good quality construction works nor economically valid costs.	MoE proposes not to implement the procurement procedure within the programme, but rather concentrate on supervision of validity of the costs and prevention of the conflict of interests.	Low

Notes:
1. The public sector includes MoE, DFI, municipalities, State Treasury, MoF, Procurement Monitoring Bureau – all public law subjects that are directly or indirectly involved in increasing of energy efficiency of multi-apartment buildings.

As seen in the table, the public sector can neither completely eliminate all the loan related credit risks, nor reduce the costs of the credit resources for the credit institutions. For this reason, the lending market of the multi-apartment buildings will continue to have an enormous range of loan interest rates implying unequal availability of the financial resources for population of Latvia (owners of multi-apartment buildings).

Based on the assessment of the proposed alternatives, including the opinion voiced by parties involved in the renovation of the multi-apartment buildings, the most suitable solution in the current market situation would be considering two FI alternatives – indirect FI (DFI guaranties to credit institution loans) and direct FI (DFI loans). Whereas, in order to reduce the payback period of the energy efficiency measures, FI must be combined with supplementary mechanisms outlined in Table 22.

Analysis of the proposed supplementary instruments (repayable and non-repayable grants, interest rate subsidies) from the angle of making an effective investment of the public funds and also standpoint of the owners of multi-apartment buildings, the grant is the most advantageous as it stimulates the beneficiaries to increase the energy efficiency of the buildings (the larger the insulation effect, the larger the amount of the grant).

In view of the financial risks of repayable grants (the owners of multi-apartment buildings have to assume the financial risk of the project as the repayable grant will have to be repaid either in full or in part if the planned energy efficiency level is not attained) and that, within the framework of the programme, DFI Competence centre will review the technical documentation of the projects (thus decreasing the technical risks for the projects), the non-repayable grant would be the recommended solution for increasing of the energy efficiency of the multi-apartment buildings.

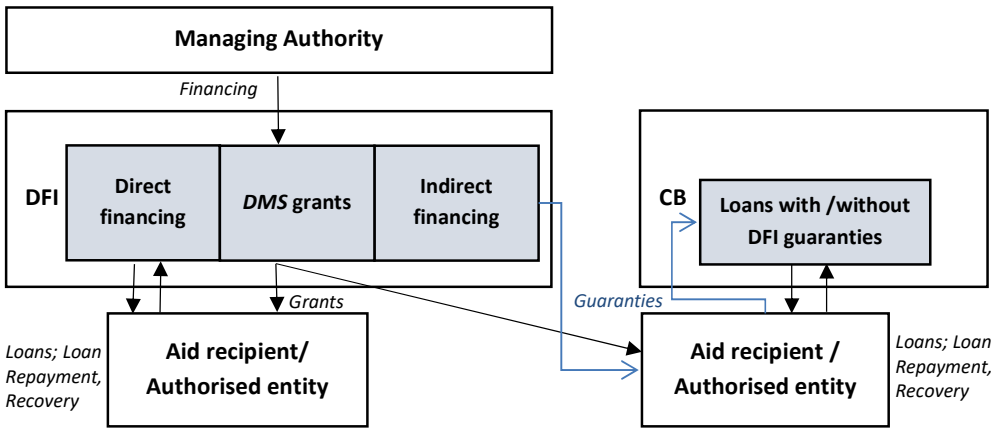
It is necessary to differentiate the amount of the grant within the framework of the programme depending on the attained energy efficiency level since it would motivate the owners of multi-apartment buildings to implement complex energy efficiency measures. Considering dependence of the economic feasibility of the project on the loan interest rates, potential prices for attraction of DFI resources and fact that EURIBOR may increase over the repayment period of the loan, the loans granted by DFI should be combined with 25% or 35% grants (detailed distribution of grants is given in Section 6.3.4.). At the same time, in view of the average commercial bank margin (around 5%), its probable fluctuations as well as energy efficiency targets to be achieved within the programme, on the occasions when the financing has been granted to the project by other financier than DFI, the grant must be from 36% to 50%.

For that reason, in order to tackle the problems previously identified in *Ex ante* Assessment regarding implementation of energy efficiency increasing measures for multi-apartment buildings, the following combination of FI and supplementary mechanisms must be introduced:

- To boost the economic cost-effectiveness of the projects for the apartment owners and attraction of private financing, the indirect FI will offer an individual guaranty for the borrower when the loan is issued by commercial bank and grant of 36% to 50% from the costs of the project.
- The project for increasing of energy efficiency of multi-apartment buildings is an opportunity to choose an alternative financing model with a reduced grant of 25% to 35% and long-term loan with low interest rates provided the project is viable and attains the established energy efficiency goal.

6.3. Description of solution proposed by financial instrument

In view of the analysis of the implementation alternatives of the programme, the proposed FI implementation model is given in the below Picture 21.



Picture 21. The scheme of the implementation model of the combined financial instrument.

The following sections describe the implementation model by explaining every stage of its implementation.

6.3.1. Final recipients of aid and authorised entities

The final recipients of the programme are owners of the apartments situated in multi-apartment buildings and owners of apartments situated in multi-apartment buildings under joint ownership that have not been parcelled out into apartment properties.

The project is implemented by mediation of the legal entity authorised by apartment owners that can be:

- House manager – a private or municipal economic operator.
- Union established by owners of the building or co-operative union.
- Other legal entity authorised by owners of the building that possesses the competence required for implementation of the project.

The entity authorised by the owners of the building acts on their behalf. All the significant decisions, as defined by Apartment Property Law or Civil Law, are passed by owners of the apartments. The apartment owners also may decide on choosing of the building contractor. The authorised entity shall conclude a loan agreement with a commercial bank/other lender or DFI (depending on the lender) and agreement with DFI on receipt of repayable loan.

6.3.2. DFI guaranties to the borrower for receipt of loan from commercial bank for energy efficiency increasing measures of multi-apartment buildings

The guaranties to the authorised entities are offered as DFI indirect FI enabling them to obtain a loan from a commercial bank (in Picture 21 the guaranties are coloured in blue). In order to introduce the indirect FI, DFI concludes a co-operation agreement with all the commercial banks that are interested and duly licenced.

Distribution of the risk of end- borrowers:

- Should the borrower require an additional guaranty for receipt of the loan, DFI issues the guaranty up of to 80% of the loan amount.
- Should the borrower default on loan repayment, DFI meets the obligations instead of the borrower for the amount of the guaranty (up to 80% of the non-repaid amount of the loan).

The commercial banks issue loans to the clients in line with their lending regulations, provisions of the contract concluded with DFI and eligibility and assessment criteria of the projects.

The commercial banks manage the bad loans in their portfolios.

The provisions of the proposed FI are outlined in the below Table 24.

Table 24. Provisions of DFI guaranties for recipients of indirect loans for increasing of energy efficiency of multi-apartment buildings

FI scope	The financial instrument is intended for increasing of energy efficiency of multi-apartment buildings.
Implementation model	DFI concludes co-operation agreements with the commercial banks. The commercial banks grant loans for renovation of multi-apartment buildings in line with their lending regulations and provisions of the programme. Should the borrower default on loan repayment, DFI will meet the obligations instead of the borrower for up to 80% of the non-repaid amount of the loan.
Financial intermediary	DFI is the financial intermediary.
FI budget	FI budget depends on the demand for direct and indirect financing. Provisionally DFI will allocate 17 million euros of ESI Funds for guaranty compensations

	and management costs. It is assumed that the credit resources of the commercial banks will amount to EUR 104 million.
Investment volumes	The loan amount is subject to the sum total limit of the project stipulating that when making calculations before approval of the project, the project's IRR must be > 0, for a calculation over a period of 20 years and with included interest payments on the loan. The calculations are based on the current heat supply tariff over a period of 20 years.
Investment period	The loans are disbursed until 31 December 2022. The maturity of the loan is from 10 to 20 years.
FI duration	The expected duration of FI is 20 years from end of disbursement of the loan. This period may be extended for 3 years if the borrowers have failed to repay the amounts of the received loans in full.
Final recipients	The owners of the multi-apartment buildings are the final recipients of the financing.
Non-eligible branches and activities	A multi-apartment building, where a single owner of such multi-apartment building does not own more than 20% of the number of the total apartment property or groups of residential premises, is eligible for the aid. Other types of buildings are considered non-eligible.
Type of state aid regulation	Since DFI holds the status of the national aid providing institution and is compensated only for the programme's management costs, then, according to the provisions of the programme, DFI is not considered as a beneficiary of the state aid. The major target group of the financial instrument are households. For this reason the aid is not subject to the provisions for state aid. As to the other groups of the recipients of the financing see Section 7.3.
Region of investments	The loans are granted to multi-apartment buildings only in the territory of Latvia.
Financial resources	The indicative structure of the financing: ***100%*** credit resources of commercial bank are used to grant a loan.
Management costs	DFI management costs are established in line with the methodology approved by the Managing Authority, in compliance with the restrictions imposed by (EU) Regulation No 480/2014[35], Article 13.
Principles of corporate governance	DFI will implement the financial instrument in line with the industry's best practice and EU Structural Funds and business support regulations. The commercial banks will make their investment decisions based on the applications, evaluation and credit risk of the projects to be implemented.
Reports	DFI will submit to the co-operating body reports on implementation of the instrument once a quarter using the specified form.
Monitoring and audit	The borrowers, involved commercial banks and DFI will have to grant access to the documents on the financial instrument and aid provided to the representatives of the European Commission, European Court of Auditors, audit authority, managing authority, designated institution and co-operating body.
Publicity	DFI will comply with all the binding publicity activities aimed to inform the would-be borrowers of the financial instrument and its possibilities.

6.3.3. DFI direct loans

DFI is responsible for implementation of the direct component of FI.

The owners of the multi-apartment buildings choose the most economically advantageous type of financing themselves – either direct FI with a loan from DFI and grant of up to 35% or indirect FI loan from other financial sources with a grant of up to 50%.

[35] **Commission delegated regulation (EU) No 480/2014 of 3 March 2014 supplementing Regulation (EU) No 1303/2013 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 and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund.**

A loan from DFI is applied EURIBOR interest rate + 2% per annum (changes due to the rise of the costs of the attracted financial resources allowed).

Distribution of end-borrowers' risk:

- The financing of ESI Funds covers the first loss in the amount of 15% from the sum total of the granted loans.
- All the subsequent losses are covered by DFI.

ERDF will cover DFI management costs. DFI lends to the clients in line with the Project Eligibility and Evaluation Criteria.

DFI manages the bad loans in its portfolio.

Table 25 outlines the provisions of the proposed financial instrument.

Table 25. Provisions of direct loans for increasing of energy efficiency of multi-apartment buildings

FI scope	The financial instrument is intended for increasing of energy efficiency of multi-apartment buildings.
Implementation model	DFI gives long-term loans with the maturity of up to 20 years with a low interest rate (that is fixed for the entire maturity of the loan) for renovation of multi-apartment buildings in line with the provisions of the programme. The financing is provided by DFI long-term loan from an international financial institution or State Treasury. The public resources provide the financing to cover the first loss in the amount of 15% from the sum total of the issued (disbursed) loan.
Financial intermediary	DFI is the financial intermediary.
FI budget	The volume depends on the demand. Provisional ESI Funds financing is EUR 19 million. DFI has attracted long-term credit resources of EUR 100 million with low interest rates that are fixed for the entire maturity of the loan.
Investment volumes	The loan amount is subject to the sum total limit of the project stipulating that when making calculations before approval of the project, the project's IRR must be > 0, for a calculation over a period of 20 years and with included interest payments on the loan.
Investment period	The loans are disbursed until 31 December 2022. The maturity of the loan is from 10 to 20 years.
FI duration	The expected duration of the financial instrument is 20 years from end of disbursement of the loan. This period may be extended for 3 years if the borrowers have failed to repay the amounts of the received loans in full.
Final recipients	The owners of the multi-apartment buildings are the final recipients of the financing.
Non-eligible branches and activities	A multi-apartment building, where a single owner of such multi-apartment building does not own more than 20% of the number of the total apartment property or groups of residential premises, is eligible for the aid. Other types of buildings are considered non-eligible.
Type of state aid regulation	Since DFI holds the status of the national aid providing institution and is compensated only for the programme's management costs, then, according to the provisions of the programme, DFI is not considered as a beneficiary of the state aid. The major target group of the financial instrument are households. For this reason, the aid is not subject to the state aid provisions. As to the other groups of the recipients of the financing see Section 7.3.
Region of investments	The loans are granted to multi-apartment buildings only in the territory of Latvia.
Financial resources	Indicative financing structure: ***15%*** - ESI Funds financing. ***85%*** - DFI long-term credit resources with a low interest rate.
Management costs	DFI management costs are established in line with the methodology approved by the Managing Authority, in compliance with the restrictions imposed by (EU) Regulation No 480/2014[36], Article 13.

[36] **Commission delegated regulation (EU) No 480/2014 of 3 March 2014 supplementing Regulation (EU) No 1303/2013 of the European Parliament and of the Council laying down common provisions on the European Regional**

Principles of corporate governance	DFI will implement the financial instrument in line with the industry's best practice and EU Structural Funds and business support regulations. DFI will make its investment decisions based on the submitted business plans, evaluation and credit risk of the projects to be implemented.
Reports	DFI will submit to the co-operating body reports on implementation of the instrument once a quarter using the specified form.
Monitoring and audit	The borrowers and DFI will have to grant access to the FI documents and aid provided to the representatives of the European Commission, European Court of Auditors, audit authority, managing authority, designated institution and co-operating body.
Publicity	DFI will comply with all the binding publicity activities aimed to inform the would-be borrowers of the financial instrument and its possibilities.

6.3.4. Grants

In view of the implementation mechanism of the programme, including activities of the competence centre and consultations provided by experts, also issuing of the grants should be delegated to DFI – both for direct loans and commercial loans from banks. The borrower submits the grant application together with the loan application – at the commercial bank or DFI. In the event the financing is attracted from another source, the implementing body of the project submits the grant application to DFI.

DFI gives the grants in the amount of 50% or 35% of the project costs provided the remaining project financing amounting to at least 50% is attracted from other private or public resources, or there is a DFI loan granted for the financing of the project amounting to at least 65%. The total volume of the grants depends on the proportion of the direct and indirect financing; however the provisional plan is to issue the grants for the sum total of EUR 133 million. The grants are financed from ESI Funds.

The percentage of the grant is explained in Section 6.1. and Section 6.2. Also the planned heating energy consumption after implementation of the energy efficiency measures must be taken into account.

For a project financed by loan of commercial bank or other financier, the amount of the grant is:

- 36% provided the heating energy consumption after implementation of the renovation is planned not higher than 90 kWh/m^2 per annum;
- 43% provided the heating energy consumption after implementation of the renovation is planned not higher than 80 kWh/m^2 per annum;
- 50% provided the heating energy consumption after implementation of the renovation is planned not higher than 70 kWh/m^2 per annum.

For a project financed by DFI loan, the amount of the grant is:

- 25% provided the heating energy consumption after implementation of the renovation is planned not higher than 90 kWh/m^2 per annum;

Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund.

- 30% provided the heating energy consumption after implementation of the renovation is planned not higher than 80 kWh/m^2 per annum;
- 35% provided the heating energy consumption after implementation of the renovation is planned not higher than 70 kWh/m^2 per annum.

Also for issuing of the grants DFI management costs are established in line with the methodology approved by managing authority.

The grant is issued once the loan or other financing has been disbursed.

6.3.5. Competence centre

The specialists at the Competence centre will provide consultations and expertise to ensure high quality of the renovation technical documents and construction works. DFI will establish the Competence centre whose experts will provide to the owners of the apartment buildings and their authorised entities the following:

1) Financial consultations about planning, preparation and implementation of the project.
2) Consultations about drafting of the technical documentation for increasing of energy efficiency.
3) The experts' guidelines on drafting of the technical renovation documents. Being aware of the limited capacity of the construction boards to establish and control quality of the technical documentation in the event of basic renewal works, DFI experts will draft specific requirements/guidelines also for this document.
4) Drafting of contract specimen. The MoE has already drafted some specimen contracts for supervision of construction and construction works.
5) Evaluation of the renovation technical documentation.
6) Opinion on compliance of the project's documentation with the requirements of the programme (energy efficiency audit, technical inspection opinion, cost estimate of construction, façade planning consent, document approving the engineering structures, high efficiency systems using renewable energy resources, evaluation of their use) when deciding on the amount of the grant for the project.
7) Summary of public information about the implemented projects.
8) Supervision of implementation quality of the energy efficiency increasing projects, if required, on-site visits.

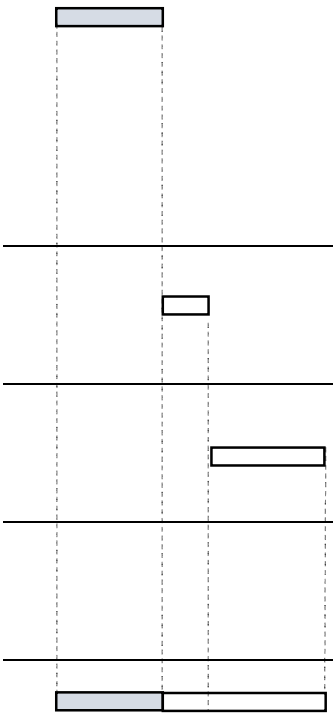
At the same time MoE and DFI, working in close co-operation with the social partners, including the commercial banks, will proceed with the information campaign Live Warmer.

The employees of the Competence centre will be stationed in DFI Head Office in Riga and DFI branches. If required, the Competence centre will hire contract staff for performance of specific tasks. The total financing allocated to the Competence centre is EUR 5 million for a period of 5 years. The Competence centre is financed from ESI Funds.

6.3.6. Additional resources raised

The total allocated financing of the financial instrument for energy efficiency increasing of the multi-apartment buildings within the framework of the combined model i.e. EU funds financing, additional public and private financing, as well as the calculated multiplier, is given

below in Picture 22. The calculation is of indicative nature as the demand for direct and indirect financing support may not be predicted with exact accuracy.



ESI Funds financing:

The allocated ESI Funds for financing of increasing of energy efficiency of multi-apartment buildings amount to ***EUR 176.47 million*** of which EUR 36 million are earmarked for FI implementation (guaranties for direct FI, co-financing for DFI loans, loan and guaranty management costs) and EUR 140.47 million are earmarked for issuing of grants, grant management and competence centre.

Level of direct financial instrument:

The financial intermediary (DFI) will ensure additional financing of ***EUR 100 million.***

Level of indirect financial instrument:

The second level intermediaries (commercial banks) will ensure additional financing of ***EUR 104 million.***

Level of final recipients:

No additional financing is attracted.

Total financing:

The total ESI Funds financing, together with the additional public and private financing within FI will reach ***EUR 240 million*** *(EUR 36 million + EUR 100 million + EUR 104 million).*

Multiplier:

The multiplier calculated by dividing the total financing (EUR 240 million) with ESI Funds financing FI (EUR 36 million) is ***567%.***

Picture 22. Additional resources raised by finances (leverage effect or multiplier)

Picture 22 shows that FI forecasted leverage (multiplier) effect is EUR 204 million (EUR 100 million DFI financing and EUR 104 million financing of the commercial banks) or 567% compared to the public financing investment.

6.4. Alternatives to energy efficiency increasing projects supported by financial instrument

In order to elaborate FI investment strategy it is essential to define the requirements towards the final outcome of the planned energy efficiency increasing measures to fulfil the state energy policy targets by year 2020 (see Section 2.2.).

Based on the results of the quantitative survey and in-depth interviews of the interested parties, the authors of the assessment have identified the works that are to be done to increase energy efficiency of multi-apartment building.

Only 3% of the multi-apartment buildings of Latvia have been constructed after year 2003 when the new construction standards regarding building envelope took effect. The remaining

multi-apartment buildings (97%) are constructed adhering to the standards that are non-compliant with up-to-date energy prices and technical solutions. According to the performed assessment, approximately 3% of the total number of the multi-apartment buildings have been renovated (renewed) and reconstructed (rebuilt). Hence, not more than 6% of the multi-apartment buildings comply with contemporary requirements.

The existing statistics point at the necessity to renovate the buildings and improve their energy efficiency indicators. In addition, it must be taken into account that during 40 to 50 years of exploitation the buildings have deteriorated physically, especially the engineering utilities.

Since the buildings were constructed in line with currently invalid and outdated construction standards, achievement of high energy efficiency increasing requirements entails a complex renovation of the buildings incorporating the following measures:

- Insulation or change of the building envelope, basement and overhead ceiling covering of the buildings.
- Renovation or reconstruction of heating, hot water and ventilation systems.
- Other technical measures, like renovation of engineering utilities to ensure sustainability of the energy efficiency increasing measures.

On many occasions the technical evaluation of the building has already resulted in the simplest and fastest benefit yielding energy efficiency measures being carried out, including change of windows of apartments and public access areas and doors to the public access areas, change of heating appliances, reconstruction of the common central heating unit. Nevertheless, the energy efficiency increasing measures must be pursued to achieve maximum heat saving.

7. Added value of financial instrument

7.1. Significance of financial instrument for shift towards low-carbon economy

Since 2 December 2013 when the Cabinet adopted the Concept on Transposition of the Energy Efficiency Requirements set out in the Energy Efficiency Directive (Directive 2012/27/EU) into the National Law, the total energy efficiency target of Latvia (for primary energy saving) has been 0.670 Mtoe (28 PJ). The portion of the energy efficiency target pertaining to multi-apartment buildings is 0.023 Mtoe (263 GWh).

The analysis of the sample of cohort of the energy efficiency increasing projects of multi-apartment buildings given in Section 4.2.2 reveals that the average heating energy savings per year obtained as a result of renovation of one building amount to 156 MWh.

Should the number of the multi-apartment buildings renovated within the framework of the energy efficiency increasing programme of multi-apartment buildings be 1770 buildings during 2014 – 2020 EU Funds programming period, the heat saving achieved as a result of improvement of energy efficiency of these buildings would be 276.1 GWh (156 MWh * 1 770). It proves that once the planned heating energy savings are attained, the portion of the energy efficiency increasing target pertaining to the buildings would be met.

In order to achieve the energy efficiency target of Latvia pertaining to multi-apartment buildings by year 2020, it would be necessary to renovate 1 700 multi-apartment buildings (for more see Section 4.5). The energy efficiency target can be achieved with the aforementioned number of buildings provided complex energy efficiency increasing measures are implemented for these buildings.

7.2. Consistency of financial instrument with other forms of public intervention

Ex ante Assessment methodology stipulates evaluation of FI consistency with other forms of public intervention, including other sources of public financing and intervention forms.

Primarily consistency and overlapping should be assessed with other forms of public intervention addressing the same market, including:

- Policy instruments and regulatory enactments (laws) implemented towards achievement of FI target or excluding FI target.
- Fiscal instruments, like tax reliefs or exemptions, state transfers, social insurance system transfers (for example, subsidies towards payment of heat bills of population).
- Other forms of public funding intervention, like grant programmes, other FI, other sources of public or municipal budget.

For the time being no alternative municipal intervention forms are proposed in increasing of energy efficiency of multi-apartment buildings. The current intervention forms are consistent with and supplementing the proposed FI.

For example, some municipalities offer co-financing to reduce the project inception risk (by taking part in decision taking at the general meetings of the tenants and drafting of the project documentation, co-financing of the energy efficiency audit and expenses of the technical project). Also additional co-financing is available for renovation of multi-apartment buildings having a comparatively lower energy efficiency potential and solvency of tenants. The

amounts and provisions of the co-financing differ in various municipalities ranging from 10%-80% of the total expenses of the project.

Some municipalities promote involvement in the energy efficiency increasing programmes by giving real estate tax discounts on the buildings that have been improved. Riga City Council Regulation No 198 dated 18 December 2012 stipulates that the multi-apartment buildings (or groups of premises in such buildings) where all the facades have been insulated are applied the maximum real estate tax discount of 90%. There are municipalities in Latvia that apply real estate tax discounts of 25%-90% to the buildings situated in the historic city centre provided renovation works, including also energy efficiency increasing measures, have been done.

The authors of the Ex ante Assessment point out in Section 4.4.1 that it is necessary to attract additional public financing to FI from CCFI. For the time being there is no decision passed on making CCFI available to financing of energy efficiency increasing measures of multi-apartment buildings.

7.3. Financial instrument implications for state aid regulations

The state aid provisions do not apply to the activity. This section recaps the arguments why state aid provisions are not applied to the implementation of the activity.

To explain why the state aid provisions do not apply, the proposed programme must be assessed from the perspective of:

- Final recipients of the funding (FI and grant) – owners of multi-apartment buildings;
- Entities authorised by recipients of funding;
- Implementing body of the programme – DFI.

7.3.1. Owners of multi-apartment buildings

The owners of multi-apartment buildings are the final recipients of the energy efficiency increasing projects. Most of the multi-apartment buildings have a mixed ownership structure i.e. are owned by more than one owner (see Section 2.1.2), also majority of the owners are natural persons residing in the apartments they own. A situation when the apartment is owned by natural person that resides in that apartment is not a state aid issue.

There are apartments that are owned by state and municipality (non-privatised apartments). Nevertheless, renting of such apartments is a means of providing housing assistance and cannot be treated as state aid. There are also some apartments in the multi-apartment buildings that are owned by private entities who rent out their apartments to tenants. Since such a rental market is restricted by its geographical location (buildings and rental market are in Latvia), it is of local significance only.

Sometimes there are non-residential premises on the ground floor of the multi-apartment building occupied mostly by trade, public catering, consumer services and health care companies (shops, cafes, hairdresser's, chemist's, dentist's, a.o.; see Section 2.1.2 and Annex 3). These businesses are local; they do not affect the business environment and competition of the companies on EU scale. Moreover, the *Ex ante* Assessment demonstrates that financial return of the energy efficiency projects is nearly zero. Granting of energy efficiency aid does not bring financial benefits as the payback period of the investment is 20 years. A deposit with a credit institution yields a higher rate of return on the investment with a lower risk.

Based on aforementioned arguments, the authors of the Ex ante Assessment consider that this type of entrepreneurship (including renting of apartments) is in compliance with Article 196 of the Communication from the Commission Draft Commission Notice on the Notion of State Aid pursuant to Article 107 (1) TFEU stating that *due to their specific circumstances, certain activities had a purely local impact and consequently did not affect trade between the Member States*. [37]

7.3.2. Entities authorised by final recipients

The entities authorised by owners of apartments are considered as service providers in the energy efficiency project that receive a payment for the provided service. These are legal entities – unions of apartment owners, house managers or other authorised entities acting on behalf of the owners of apartments.

Guaranties to the authorised entities are offered as DFI indirect FI to enable the apartment owners to take out a project implementation loan from a commercial bank. Since the authorised entities are acting on behalf of the apartment owners and apartment owners repay the loan using their own funds, the authorised entities may not be considered as final recipients.

7.3.3. Implementing body of programme (DFI)

DFI aims (see Section 6.3) imply that it does not compete on the market with its services, but gets involved where market gaps have been identified.

As the implementing body DFI will provide both direct and indirect financial services to the apartment owners and their authorised entities receiving payment for the provided services adequate to the market situation. The payment is established in line with the methodology co-ordinated by MoF and MoE that was used also in 2007-2013 EU funds programming period. DFI will channel all the received public funding to the final recipients – owners of the apartments.

[37] http://ec.europa.eu/competition/consultations/2014_state_aid_notion/draft_guidance_lv.pdf

8. Expected results of financial instrument and supervision

8.1. Expected result

Table 26 outlines the expected result, outcome and performance indicators of the multi-apartment energy efficiency increasing instrument in line with EU 2014 – 2020 operational programme "Growth and Employment" and Concept on Transposition of the Energy Efficiency Requirements set out in the Energy Efficiency Directive (Directive 2012/27/EU) into the national law.

Table 26. Expected result, outcome and performance indicators of FI for increasing of energy efficiency of multi-apartment buildings

Type of indicator	Indicator	Value	Proposed value	Data source
Outcome indicators for operational programme „Growth and Employment"	Average heating energy consumption in multi-apartment buildings after implementation of energy efficiency measures	kWh/m^2/ per annum	90	Project data
	Number of households with improved energy consumption classification	number	14 286	Project data
Result indicators for operational programme „Growth and Employment"	Average heating energy consumption (for all multi-apartment buildings of Latvia disregarding use of FI)	kWh/m^2/ per annum	120 (2023)	MoE (CSB data base)
Result indicators for operational programme „Growth and Employment"	Additional capacities using the renewable energy resources	MW	2.9	Project data
Result indicators for Concept on Transposition of the Energy Efficiency Directive 2012/27/EU energy efficiency requirements	Portion of the state indicative energy efficiency target for multi-apartment buildings	Mtoe GWh	0.023 263	Project data
FI performance indicators	Number of renovated buildings	Number	**1 770**	MoE (DFI) monitoring
	Total FI and grant financing for implementation of energy efficiency increasing projects [1]	EUR, thsd	**354 000**	MoE (DFI) monitoring
	Share of the private co-financing in the state aid given to the owners of multi-apartment buildings [2]	EUR, thsd	**204 000**	MoE (DFI) monitoring
	Lending loss; lost loans / total loans	Percentage	**10**	MoE (DFI) monitoring
	Management costs / sum total of loans granted	Percentage	**2**	MoE (DFI) monitoring
	Leverage effect (multiplier); total additional financing / ESI Funds financing	Percentage	**579**	MoE (DFI) monitoring

Notes:

1. Total FI and grant financing = grants EUR 133 million + multiplier effect EUR 204 million (commercial banks and DFI financing) + ESI Funds co-financing for direct FI loans EUR 17 million. The amount does not include the management costs of DFI Competence centre, direct FI, guaranties and grants.

2. The private co-financing is a difference between the total proposed FI financing (EUR 240 million that includes ESI Funds financing for FI implementation, additional public and private financing) and ESI Funds financing for FI implementation EUR 36 million.

(1) The given performance indicator has been calculated based on the policy targets established by Ministry of Economy. The Long-term Energy Strategy of Latvia 2030 – Competitive Energy for the Society aims to achieve a 50% reduction, compared to the current indicator, in the average heating energy consumption in the buildings by year 2030, that with the climate correction would be 200 kWh/m^2/per annum. The value to be reached by year 2023 is 120 kWh/m^2/per annum.

(2) The number of the supported apartment owners has already been indicated in the operational programme "Growth and Employment". The calculations are based on the assumption that the average investment expenses amount to EUR 140 per m^2 of the building and average size of the household (apartment) is 65 m^2. Since the amount of the FI additionally raised private financing was not known at the moment of planning of the indicators of the operational programme, it was assumed that EUR 130 million would be used for granting of loans improving energy consumption classification in 14 286 buildings.

(3) The operational programme "Growth and Employment" quotes the amounts of the additional capacities using the renewable energy resources. The calculations are based on the assumption that 1% of the ESI Funds financing will be used for instalment of additional capacities using the renewable energy resources and instalment of 1 MW capacity requires investments of EUR 600 000 – 700 000.

The number of multi-apartment buildings expected to be renovated within FI is **1 770**. The figure is based on FI implementation strategy and proposed total FI financing (the total financing, including public and private sources, amounts to **EUR 354 million**) and average renovation expenses per multi-apartment building (EUR 200 000).

To enable the co-operating body and designated institution to assess the actual performance of the financial instrument for increasing of energy efficiency of multi-apartment buildings and to comply with the European Commission regulation, the financing agreement concluded between the co-operating body and DFI will detail specific reporting and monitoring requirements. It will guarantee acquisition of data and their availability in the required form, as well as quarterly updates of the operational data and financial statements. The statements will keep track of the actual performance and investment strategy and compliance with provisions of the financing agreement.

8.2. Implementation milestones schedule

The implementation milestones schedule of the financial instrument for increasing of energy efficiency of multi-apartment buildings with major activities and their implementation deadlines is given in Table 27.

Table 27. Implementation milestones schedule of financial instrument for increasing of energy efficiency of multi-apartment buildings

Activity	Date
Assessment of market failures	**February, 2015**
Development of financial instrument	**March, 2015**
Approval of financial instrument	**May, 2015**
Approval of financial intermediary	**June, 2015**
Implementation of financial instrument	**July, 2015**
Launching of financial instrument	**July, 2015**

9. Updating of Ex ante Assessment and methodology

The market conditions, especially the provisions on which the funds are offered for increasing of energy efficiency of multi-apartment buildings, may change during FI implementation.

In line with Article 37 (2) (g) of the Common Provisions Regulation, the Ex ante Assessment includes *"provisions allowing for the ex ante assessment to be reviewed and updated as required during the implementation of any financial instrument which has been implemented based upon such assessment, where during the implementation phase, the managing authority considers that the ex ante assessment may no longer accurately represent the market conditions existing at the time of implementation"*.

Hence, the designated institution (MoE) is obliged to evaluate minimum once a year whether the *Ex ante* Assessment reflects the current market conditions accurately enough. Should the designated institution consider updating of *Ex ante* Assessment necessary, the designated institution leads the updating process, by out-sourcing, if required, reviewing of the market analysis, investment strategy and provisions of the financial instruments, and updates the assessment accordingly, if possible, in line with the initial methodology.

To establish the need for updating of *Ex ante* Assessment, the designated institution checks for the following:

- Gradual shift in economic environment that has brought in new evidence of market failures or suboptimal investment situations introducing also minor changes to the scope and contents of the proposed public sector investment needs, including the launched FI.
- Significant changes in economic environment, like major financial crisis or other external factors, that may require reviewing of the financing market for increasing of energy efficiency of multi-apartment buildings, making of essential changes to the launched FI and, possibly, requiring completely new financial instruments.
- Information extracted from FI statements and monitoring reports is inaccurate, insufficient or fails to describe the risks adequately regarding FI proposed and attained targets.

Within three months of making any changes to the *Ex ante* Assessment, the designated institution shall publish the summary and conclusions of the updated assessment and submit a report on the updated assessment to the EU Funds Monitoring Committee as required by European Structural and Investment Funds regulations.

Since it is difficult to predict changes to the economic environment for the entire EU 2014 – 2020 programming period, the option of updating of *Ex ante* Assessment and methodology ensures greater programming flexibility of the funds with the instruments already at the disposal of the designated institution.