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Market context for the implementation
of blended financial instruments under
the FIRECE project
based on
EX-ANTE ANALYSIS REPORT

MONOGRAPHIE

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EX-ANTE ANALYSIS REPORT

Monografie – Politechnika Lubelska



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Summary

The FIRECE project: Innovative Financial Instruments for Industry Low carbon Energy transition in Central Europe is a transnational cooperation project implemented by the Lublin Voivodeship Self-government from the European Regional Development Fund under the Interreg Central Europe 2014–2020 Program, Priority Axis 2: Cooperation in the field of low-emission strategies in CENTRAL EUROPE, Specific objective 2.2. Improving territorial energy strategies and policies that have an impact on mitigating the effects of climate change.

FIRECE is a transnational cooperation project implemented under the Interreg Central Europe 2014–2020 Program (financed by the European Regional Development Fund) – Priority Axis 2: Cooperation in the field of low-emission strategies in CENTRAL EUROPE in the period 2017–2020. Ten partners from 7 member countries (Austria, Czech Republic, Croatia, Germany, Poland, Hungary, Italy) participate in the project. The project leader is the Venice Chamber of Commerce, Industry, Craft and Agriculture – it is the Lead Partner (PP1 Venice). The other partners are: PP2; PP6 – Network for energy and environmental technologies; Center for International Management and Knowledge-Based Economy (Germany), PP3 – Emilia Romagna Region (Italy), PP4 – Southern Regional Innovation Agency (Hungary), PP5 – Center for Research and Innovation (Austria), PP7 – Regional Development Agency (Poland), PP8 – Lublin Voivodeship (Poland), PP9 – Istryjska Regionalna Agencja Energetyczna (Croatia), PP10 – A consulting company in the field of energy, environment and management (Czech Republic).

The report was prepared for the FIRECE project with the support of representatives of the Marshal's Office of the Lublin Voivodeship: Department of the Environment and Natural Resources of the UM WL, Department of Strategy and Development of the UM WL, Department of Management RPO UM WL, as well as the institutions: Energy Regulatory Office, Energy Management Office of the City of Lublin, the Lublin Agency for Entrepreneurship Support, Voivodship Fund for Environmental Protection and Water Management in Lublin, Lublin Science and Technology Park in Lublin, Lublin Development Foundation, Bank for Environmental Protection, National Bank of Poland and Lublin University of Technology.

FIRECE project website:

<https://www.interreg-central.eu/Content.Node/FIRECE.html>

Keywords: market analysis, promotion of innovative financial instruments, promotion of renewable energy

Streszczenie

Projekt FIRECE: Innovative Financial Instruments for Industry Low carbon Energy transition in Central Europe to projekt współpracy ponadnarodowej realizowany przez Samorząd Województwa Lubelskiego ze środków Europejskiego Funduszu Rozwoju Regionalnego, w ramach Programu Interreg Europa Środkowa 2014–2020, Oś priorytetowa 2: Współpraca w zakresie strategii niskoemisyjnych w EUROPIE ŚRODKOWEJ, Cel szczegółowy 2.2. Poprawa terytorialnych strategii energetycznych i polityk mających wpływ na łagodzenie skutków zmian klimatycznych.

FIRECE to projekt współpracy ponadnarodowej realizowany w ramach Programu Interreg Europa Środkowa 2014–2020 (finansowany ze środków Europejskiego Funduszu Rozwoju Regionalnego) – Oś priorytetowa 2: Współpraca w zakresie strategii niskoemisyjnych w EUROPIE ŚRODKOWEJ w okresie 2017–2020. W projekcie uczestniczy dziesięciu partnerów z 7 krajów członkowskich (Austria, Czechy, Chorwacja, Niemcy, Polska, Węgry, Włochy). Liderem projektu jest Wenecka Izba Handlu, Przemysłu, Rzemiosła i Rolnictwa – jest to Partner Wiodący (PP1 Wenecja). Zaś pozostali partnerzy to: PP2; PP6 – Sieć na rzecz energii i technologii środowiskowych; Centrum zarządzania międzynarodowego i gospodarki opartej na wiedzy (Niemcy), PP3 – Region Emilia Romagna (Włochy), PP4 – Południowa Regionalna Agencja ds. Innowacji (Węgry), PP5 – Centrum ds. Badań i Innowacji (Austria), PP7 – Agencja Rozwoju Regionalnego (Polska), PP8 – Województwo Lubelskie (Polska), PP9 – Istryjska Regionalna Agencja Energetyczna (Chorwacja), PP10 – Firma konsultingowa z dziedziny energii, środowiska i zarządzania (Czechy).

Raport został opracowany na potrzeby projektu FIRECE przy wsparciu przedstawicieli Urzędu Marszałkowskiego Województwa Lubelskiego: Departamentu Środowiska i Zasobów Naturalnych UM WL, Departamentu Strategii i Rozwoju UM WL, Departamentu Zarządzania RPO UM WL, a także instytucji: Urzędu Regulacji Energetycznej, Biura Zarządzania Energią Urzędu Miasta Lublin, Lubelskiej Agencji Wspierania Przedsiębiorczości w Lublinie, Wojewodzkiego Funduszu Ochrony Środowiska i Gospodarki Wodnej w Lublinie, Lubelskiego Parku Naukowo-Technologicznego w Lublinie, Lubelskiej Fundacji Rozwoju, Banku Ochrony Środowiska, Narodowego Banku Polskiego oraz Politechniki Lubelskiej.

Strona ww projektu FIRECE:

<https://www.interreg-central.eu/Content.Node/FIRECE.html>

Słowa kluczowe: analiza rynkowa, promocja innowacyjnych instrumentów finansowych, promocja, energii odnawialnej

Introduction

The monograph “Market context for the implementation of blended financial instruments under the FIRECE project” is one of the project deliverables. The FIRECE project: Innovative Financial Instruments for Industry Low carbon Energy transition in Central Europe is a transnational cooperation project implemented by the Lublin Voivodeship Self-government from the European Regional Development Fund under the Interreg Central Europe 2014–2020 Program, Priority Axis 2: Cooperation in the field of low-emission strategies in CENTRAL EUROPE, Specific objective 2.2. Improving territorial energy strategies and policies that have an impact on mitigating the effects of climate change. FIRECE is a transnational cooperation project implemented under the Interreg Central Europe 2014–2020 Program (financed by the European Regional Development Fund) – Priority Axis 2: Cooperation in the field of low-emission strategies in CENTRAL EUROPE in the period 2017–2020. Ten partners from 7 member countries (Austria, Czech Republic, Croatia, Germany, Poland, Hungary, Italy) participate in the project. The project leader is the Venice Chamber of Commerce, Industry, Craft and Agriculture – it is the Lead Partner (PP1 Venice). The other partners are: PP2; PP6 – Network for energy and environmental technologies; Center for International Management and Knowledge-Based Economy (Germany), PP3 – Emilia Romagna Region (Italy), PP4 – Southern Regional Innovation Agency (Hungary), PP5 – Center for Research and Innovation (Austria), PP7 – Regional Development Agency (Poland), PP8 – Lublin Voivodeship (Poland), PP9 – Istrian Regional Energy Agency (Croatia), PP10 – A consulting company in the field of energy, environment and management (Czech Republic).

The FIRECE project aims to contribute to targeted outcomes of regional energy plans through increased use of (innovative) financial instruments in the Central Europe region. Within the framework of a single task in this project, an “Ex-ante analysis report” was prepared for the Lubelskie Voivodeship by an external expert Magdalena Rzemieniak from the Faculty of Management, Lublin University of Technology, and a statistical consultant Marcin Gąsior, also from the Faculty of Management, Lublin University of Technology. This research was conducted under Activity A.T2.1 from the FIRECE application form. The research was participated by representatives of: Department of the Environment and Natural Resources of the UM WL, Department of Strategy and Development of the UM WL, Department of Management RPO UM WL, as well as the institutions: Energy Regulatory Office, Energy Management Office of the City of Lublin, the Lublin Agency for Entrepreneurship Support, Voivodship Fund for Environmental Protection and Water Management in Lublin, Lublin Science and Technology Park in Lublin, Lublin Development Foundation, Bank for Environmental Protection, National Bank of Poland and Lublin University of Technology.

In the monograph “Market context for the implementation of blended financial instruments under the FIRECE project”, the research methods triangulation was applied: secondary data analysis (desk research), quantitative research, individual in-depth interviews and an expert panel. The research included in the monograph was conducted in the period June – December 2019 in the Lubelskie Voivodeship. The monograph summarizes available data including primary and secondary external and internal data on existing financial support mechanisms for energy efficiency and the renewable energy sources (RES) use in industry among small and medium-sized enterprises in the Lubelskie Voivodeship. The monograph also refers to the internal documents developed in the FIRECE project, refers to the Ex-ante assessment methodology for financial instruments for 2014–2020 Quick guide and Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17/12/2013 establishing common provisions concerning 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.

The issues discussed in the monograph concern financial instruments in the 2007–2013 programming perspective, market failure analysis and assessment of sub-optimal investment levels and investment needs, as well as assessment of the designed financial instruments’ added value, additional public and private resources analysis, investment strategy proposal and designed financial instruments feasibility study. The necessity to develop the presented innovative financial instrument resulted from two considerations. Firstly, it was connected with the decision to use a repayable instrument, which makes it possible to support a larger number of projects and beneficiaries due to the return of capital to the Managing Authority, and also ensures greater multiplier effects than non-repayable instruments. On the other hand, however, within both these activities there is a significant risk of insufficient interest in the loan program, while entrepreneurs to some extent declare their interest in grant character support. Therefore, it is proposed to create a financial instrument combined with a grant that would be earmarked for investment purposes (mixed instrument). The aim of all planned financial instruments is to eliminate the gap in financing projects from the area of Measure 4.2 and Measure 5.1. The former aims, according to the “Detailed description of priority axes of the WLROP”, to implement tasks contributing to the fulfilment of obligations arising from the so-called energy and climate package of the European Union and the Europe 2020 Strategy. Measure 5.1, on the other hand, aims to achieve high energy efficiency of enterprises through the implementation of multidirectional and complex tasks in various fields, i.e. heating, ventilation, cooling, hot water preparation and lighting of premises; as well as through wider use of energy from renewable and unconventional

sources. The investments are designed to supply the demand for heat or for heat and electricity in enterprises. Therefore, this monograph should be interesting reading for entrepreneurs representing SMEs and micro-enterprises, local, regional and national authorities, business support organisations, sectoral agencies, experts dealing with energy efficiency and renewable energy sources, experts and opinion leaders involved in financial instruments, local, regional and national stakeholders, journalists and media representatives in the field of RES.

The text of this monograph was concurrently published in Polish [Rzemieniak M., Gąsior M. (2020), *Kontekst rynkowy wdrożenia łączonych instrumentów finansowych w ramach projektu FIRECE*. Lublin: Wydawnictwo Politechniki Lubelskiej] in order to communicate findings and conclusions of the project and make them more accessible to the Polish audience. The English version, updated and revised, was prepared with the help of the third author, Agnieszka Sulimierska, who was responsible for the data presentation and visualization as well as for preparing infographics with essential information.

The FIRECE project website:

<https://www.interreg-central.eu/Content.Node/FIRECE.html>

Glossary and definitions

Shortcut	Explanation
AFN	Additional Funds Needed – financial planning model
CSO	Central Statistical Office
DDPA	Detailed Description of Priority Axes
ERDF	European Regional Development Fund
ESF	European Social Fund
ESIF Policies	Policies making use of the ESI Funds
ESF	European Social Fund
ESI Funds or ESIF	European Structural and Investment Funds for the programming period 2014–2020. This includes: European Regional Development Fund (ERDF), Cohesion Fund (CF), European Social Fund (ESF), European Agricultural Fund for Rural Development (EAFRD), and European Maritime and Fisheries Fund (EMFF).
EP OP	Eastern Poland Operational Program
FI	Financial Instrument
FIs	Financial Instruments – as in Article 2 (11) of the CPR, the definition of financial instruments as laid down in the Financial Regulation shall apply mutatis mutandis to ESI Funds, except where otherwise provided in the CPR. In this context, financial instruments means Union measures of financial support provided on a complementary basis from the budget to address one or more specific policy objectives of the Union. Such instruments may take the form of equity or quasiequity investments, loans or guarantees, or other risksharing instruments, and may, where appropriate, be combined with grants.
FRR	Fair rate of return for entrepreneurial activities in a certain sector in a certain country.
Fund of funds	Means a fund set up with the objective of contributing support from a Programme or Programmes to several financial instruments. Where financial instruments are implemented through a fund of funds, the body implementing the fund of funds shall be considered the only beneficiary in the meaning of Article 2 (27) of the CPR.
ICT	Information and Communication Technologies
IP	Investment Priority
LESA	the Lublin Agency for Entrepreneurship Support

Shortcut	Explanation
Leverage effect	According to Article 140 of the Financial Regulation and Article 223 of its Rules of Application “ <i>Financial instruments shall aim at achieving a leverage effect of the Union contribution by mobilising a global investment exceeding the size of the Union contribution. The leverage effect of Union funds shall be equal to the amount of finance to eligible final recipients divided by the amount of the Union contribution</i> ”.
LGU	Local Government Unit
MA	Managing Authority – managing authority, as defined in the Regulations regarding ESI Funds.
MFF	Multiannual Financial Framework of the EU (2007–2013, 2014–2020)
MI	A microfinance institution (MFI) is an organization that provides financial services targeted to a clientele poorer and more vulnerable than traditional bank clients.
MS	Member State
NFEPWM	The National Fund for Environmental Protection and Water Management
NSRF	National Strategic Reference Framework
OP	Operational Programme
PCA	Polish Classification of Activities
Programme	Means ‘Programme’ as described in Article 2 (6) of the CPR
OP DEP	Operational Program for the Development of Eastern Poland
ROP LV	Regional Operational Program of the Lublin Voivodeship
SOP ICE	Sectoral Operational Program – Improvement of the Competitiveness of Enterprises
R + D	Research and Development
RES	Renewable Energy Sources
RFEPWM	The Regional Fund for Environmental Protection and Water Management in Lublin
SMEs	Micro, Small and Medium Enterprises – Small and medium-sized enterprises as per European Commission Recommendation 2003/361/EC.

Shortcut	Explanation
State aid	‘State aid’ means aid falling under Article 107 (1) of the Treaty, which shall be deemed for the purposes of this Regulation, to also include <i>de minimis</i> aid within the meaning of Commission Regulation (EC) No 1407/2013 of 18 December 2013 on the application of Articles 87 and 88 of the Treaty to <i>de minimis</i> aid ² , Commission Regulation (EC) No 1408/2013 of 18 December 2013 on the application of Articles 87 and 88 of the EC Treaty to <i>de minimis</i> aid in the sector of agricultural production and Commission Regulation (EC) No 875/2007 of 24 July 2007 or its successor Regulation on the application of Articles 87 and 88 of the EC Treaty to <i>de minimis</i> aid in the fisheries sector and amending Regulation (EC) No 1860/2004.
Structural Funds (SFs)	EU Structural Funds for the programming period 2007–2013 and 2014–2020 (ERDF and ESF).
Technical support	Grants for technical support, which are combined with a financial instrument (FI) in a single operation are provided for the preparation of the prospective investment (please refer to Article 37 (7), (9) of the CPR).
TFEU	Treaty on the Functioning of the European Union
TG	Thematic Goal
Thematic objectives	Objectives supported by each ESI Fund in accordance with its mission to contribute to the Union strategy for smart, sustainable and inclusive growth (see Article 9 of the CPR).
UE	European Union
Union priorities for rural development	For the EU rural development policy (EAFRD) ‘Thematic objectives’ are translated into Union priorities for rural development as defined by Article 5 of the specific EAFRD proposal for a new Regulation [COM(2011) 627 final/2]. So, the term ‘Thematic objectives’ will also cover the Union priorities for rural development.
VLO	Voivodeship Labor Office

1. FINANCIAL INSTRUMENTS: OVERVIEW

1.1. Rationale for the use of financial instruments and experience in the 2007–2013 programming period

The knowledge of existing financial instruments is important when we would like to create an innovative one. The types of financial instruments are presented below¹:

LENDING FINANCIAL PRODUCTS

- **Project loans** – to finance projects with high investment cost, research and innovation programs, direct loans of between 7.5 and 25 M€ to mid-cap companies (< 3000 employees) and multi-component loans (financing projects for energy efficiency and renewable, infrastructure, transport and urban renovation through national or public sector institution).
- **Intermediated loans** – to support SMEs, large and mid-cap businesses, national administrations, public sector bodies and local authorities via intermediary entities.
- **Venture capital** – to support innovation and entrepreneurship of high-tech SMEs in their early stages of growth, managed by the EIF. In the EIF activities are included advising and managing guarantee/debt funds and equity funds-of-funds through national and regional governments and private strategic investors.
- **Venture debt** – to support small, high-risk and incredibly innovative projects, where the needed investment cost is between EUR 7.5 to EUR 50m.
- **Microfinance** – to support microfinance institutions and smaller businesses with low income self-employed through promoting sustainable financial services.
- **Equity and fund investment** – to support investments in Infrastructure and Environment (infrastructure equity and debt funds, environmental funds), Carbon Funds, Sustainable Urban Development (loans, guarantees and equity investments through the JESSICA initiative), Energy Efficiency and Renewables (innovative fund-of-funds GEEREF), Venture capital and private equity.

BLENDING FINANCIAL PRODUCTS

- **Structured finance** – for projects that include trans-European transport and energy networks, infrastructure, energy and SMEs using mix of instrument with higher risk profile provided by the Structured Finance Facility.
- **Project bonds** – the Europe 2020 Project Bond Initiative by EIB and EC, is financing large-scale infrastructure projects in the sectors of energy (TEN-E), transport (TEN-T) and information and communication technology (ICT).
- **Private Finance for Energy Efficiency (PF4EE)** – financing energy efficiency investments in projects that support implementation of National Energy Efficiency Action Plans or other EE programs of EU member states, provided by the joint agreement between the EIB and European Commission (EC).

¹ *Benchmarking report WTP1*, Internal document in the FIRECE project, pp. 6–7.

- **Guarantees** – financing large or small, private and public projects through variety of guarantee instruments.
- **Trust funds** – partnering with donors provide funds directly or combined with financial instruments from the EIB or other financial institutions to improve people's lives in different regions around the world.
- **European Structural and Investment Funds (ESIF) Financial instruments** – provide loans, guarantees, equity to support economically feasible projects that promote the EU policy objectives.
- **Flexible SME funding (JEREMIE)** – support the SMEs financing using EU Structural Funds provided through loans, guarantees and equity.
- **Urban development technical assistance (JESSICA)** – Joint European Support for Sustainable Investment in City Areas is initiative that supports the use of EU grant funding (Structural Funds) to make repayable investments (loans, guarantees, equity) in projects such as: urban infrastructure, energy, transport, EE improvements, water/wastewater, university/medical and other facilities, office space for SMEs/IT/R&D sectors, heritage of cultural sites etc.

This methodology will not give detailed information about the existing FIs, but list them with a short definition for easier understanding². For more information, please check the D.T1.5.2. Guidelines (pp. 9–17.):

- **Dedicated Credit Lines.** In the mechanism of dedicated credit lines the public funding is able to reduce the cost of energy efficiency renovation loans and provides concessions in terms, like the periods of the repayment. The impact and relative success of dedicated credit lines can also be explained by their retail distribution in private banking networks.
- **Risk-sharing facilities** can cover part of the default risk associated with payment and through this can reduce the risks of banks and equity investors, either through a guarantee or a first loss facility. They can be combined with dedicated credit lines and are a key tool for increasing the amount of bank lending to renew energy efficiency.
- **The subordinated loan** is in a secondary position to the primary loan, it is between a grant and a direct credit line. It is much riskier to the lender as a normal business loan, because if you are in a bad business situation and a bankrupt occurs the subordinated loan will be paid back after the normal one.
- **A covered bond** is a debt instrument backed by financial instruments – typically energy efficiency loans. Bondholders are in the first place in direct debit towards the issuer and are entitled to cash flows from assets designated as collateral in the event of their insolvency. The asset pool is dynamic, meaning that non-performing assets have to be replaced.
- **Energy Performance Contracts** are an important tool for modernizing buildings. In this performance-based form of procurement, the cost of investing in energy

² Methodology for the PA1 addressed to Public Authorities, Internal document in the FIRECE project, pp. 6–7.

efficiency measures will be partly or fully covered by the financial savings resulting from lower utility bills and maintenance costs due to the measures.










- **Leasing** is a type of business in which the lessor purchases the goods selected by the lessee in order to allow its use by the lessee for a certain period of time against payment. By leasing the right of use, the lessee bears the risks associated with the use, but of course, the profit resulting from the use of the leased asset is also applicable to him.
- **On-Bill Repayment** provides the opportunity for a building or apartment owner to save money by developing energy efficiency improvements. After that, the development costs are paid from savings on utility bills, taxes. This mechanism helps to improve the creditworthiness of energy efficiency investments.
- **Energy efficiency investment funds** invest in energy efficiency projects for buildings or industry and seeking a return based on savings achieved.
- **Green Bonds.** The goal of green bonds is to internalize environmental externalities and increase environmentally friendly investments. Green bonds are a financial instrument in which the proceeds are exclusively applied to (new and existing) “green projects” defined here as projects and activities that promote climate or other environmental sustainability outcomes. Given the long-term, stable characteristics of energy efficiency investments, debt financing is usual and the new market for green bonds is a natural place for investors to seek capital for investments in green buildings and energy efficiency in the industry.
- **The Energy Service Agreement (ESA)** is a pay-for-performance service contract between a third party investor and an asset owner to deliver energy savings as a service. A third party investor and an asset owner enter into an ESA contract where the asset owner agrees to pay their historical utility bills to the third party.
- **Factoring Fund for Energy Performance Contracts.** Factoring is a financial transaction in which an entity sells its accounts receivable (usually invoices) to a third party (called a factor) at a discount. In energy efficiency terms a factoring fund for Energy Performance Contracts would purchase funded Energy Performance Contracts from their originators (usually ESCOs) at a discount, freeing up the balance sheet of the originators to originate more Energy Performance Contracts.
- **Crowdfunding** is an innovative financing method, typically used by start-ups or growing enterprises as an alternative way to access funds. It works through crowdfunding platforms that connect the fundraisers with the crowd. There are good practices of crowdfunding for energy efficiency around Europe.

In the case of the Lubelskie Voivodeship, the ROP axes in accordance with the main goal of the FIRECE project regarding SMEs are Priority Axis 4 *Environmentally friendly energy* (Measure 4.2. Renewable energy production in enterprises) and Priority Axis 5 *Energy efficiency and low-emission economy* (in particular Measure 5.1. Improving the energy efficiency of enterprises). In both Measures 4.2. and 5.1. RPO LV in the 2014–2020 period only subsidy support was used.

1.2. Options available to Managing Authorities

National level – The Operational Programme Infrastructure and Environment 2014–2020 (Table 1)

Table 1 – Options available to managing authorities

	Regional level - Title of the scheme	Regional Operational Programme of the Lubelskie Voivodeship 2014-2020 ► Priority Axis 4 - <i>Environmentally-friendly energy</i> (Measure 4.2. <i>Production of energy from RES in enterprises</i>) ► Priority Axis 5 - <i>Energy Efficiency and Low Emissivity</i> (Measure 5.1. <i>Improving the energy efficiency of enterprises</i>)
	Type of the scheme (e.g. grants, loans, guarantees, etc.)	Subsidies
	Source of finance (e.g. state/regional budget, EU funding, international financial institution)	ERDF
	Funding institution (= Financial scheme operator)	Marshal's Office (Department of Regional Operational Programme Management) Managing Authority: Management Board of the Lubelskie Voivodeship Intermediate Body: Lublin Agency for Entrepreneurship Support
	Budget	Measure 4.2.: 39 271 882 EUR Measure 5.1.: 45 787 659 EUR
	Dates of operation	2014-2020
	Thematic focus (i.e. eligible measures)	Generation and distribution of renewable energy (PA 4) ► (re)construction of the infrastructure used for the production of RES energy ► investments in the construction and modernization of heat production units ► distributed cogeneration Energy efficiency and the use of renewable energy in enterprises (PA 5) ► deep thermal modernization of enterprises ► reduction of energy, heat and water losses ► (re)construction of RES installations
	Sector focus/ eligible applicants (in particular, how the industry is addressed)	In cases of measures 4.2. and 5.1., support is provided only for enterprises. Measure 4.2.: The subject of the project is significant, i.e. production of energy from RES. Measure 5.1.: Support cannot be granted to the extent that it is excluded in art. 1 of Regulation 651/2014, art. 3 par. 3 of Regulation 1301/2013 and art. 1 point 1 of the Commission Regulation (EU) No. 1407/2013.
	What is a link to Energy Plans (i.e. is the scheme foreseen by the Energy Plan, or was it developed rather independently)?	Realization of the assumptions of the climate-energy package for 2020 and the Strategic Plan for Adaptation sectors and areas vulnerable to climate change by 2020 , with the prospect of 2030 (SAP 2020). The Energy Development Programme for the Lubelskie Voivodeship contains development scenarios for the programming period of EU cohesion policy 2014-2020 , and the recommendations were used in the development of the Regional Operational Programme of the Lubelskie Voivodeship 2014-2020.

Source: Report on public support to industry investment on energy, Internal document in the FIRECE project, pp. 43–44.

2. EX-ANTE ASSESSMENT: PURPOSE AND PRELIMINARY CONSIDERATIONS

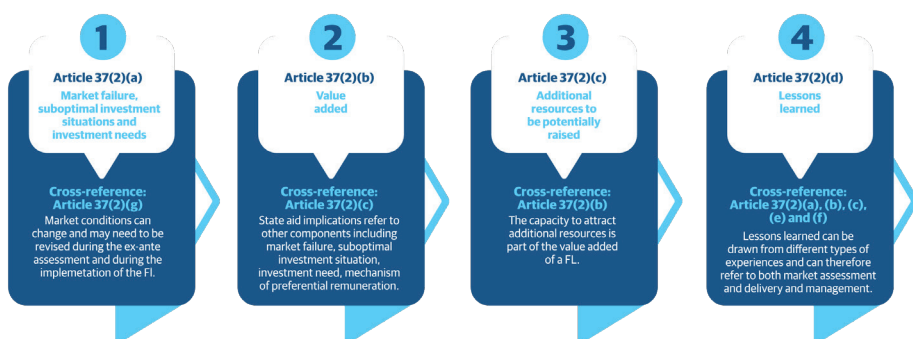
2.1. Scope and value of the exante assessment for financial instruments

The FIRECE project aims to contribute to the achievements of targeted results of Regional Energy Plans through an increased use of (innovative) financial instruments in the Central Europe area. The particular focus is on public support for industry to invest into energy efficiency and renewable energy sources.

Using the FIRECE action plan (O.T1.3 project goal from the FIRECE application form) and guidelines (O.T1.5 project goal from the FIRECE application form), an ex-ante analysis was prepared for the Lubelskie Voivodeship. Each of the FIRECE project partners prepares its own analysis of its region as a contribution to Pilot Action 1 (Activity A.T2.4 from the FIRECE application form). The analysis focuses on market failures, the value added of Financial Instruments (FI) and resources.

The ex-ante assessment analysis is able to give reliable evidences for the decision making process to the Managing Authorities (MA) during the formation and realization of IFIs.

Building block 1: Market assessment



Graphic 1 – Block 1: Market assessment

Source: *Methodology for the PA1 addressed to Public Authorities, Internal document in the FIRECE project, p. 15.*

In the ex-ante assessment analysis the authorities have to prove that the planned FI meets the market needs and responds to the identified market failures. After the successful finalization of the analysis the MAs are able to solve the crucial market gaps and determine the priorities for the allocation of public resources between programmes.

The Block 1 of ex-ante assessment analysis contains four main parts. The first focuses on market imperfections and sub-optimal investment situations, as well

as on assessing investor demand. The second part explores the added value to the supplementary public or private resources, which are possible to improve by the FI and the last part are about the lessons we learned. With the elaboration of this analysis the MAs gain an overall prospective about the market conditions where the FI will have to perform. The graph above shows the structure of the ex-ante assessment analysis Block 1.

Sub-optimal situations can be managed using a variety of methods, but the most effective way is to use financial instruments or grants.





Sub-optimal investment situations relate to weaker investment results: a sub-optimal investment situation occurs where there is a portfolio of economically viable projects, but for one reason or a combination of reasons there are barriers preventing their financial viability.

2.2. Preliminary considerations

The main objective of the study was to assess credible premises for the decision-making process of Managing Authorities (MA). The purpose of ex-ante analysis is to show that the planned financial instrument will meet the market needs and respond to verified market failures. Upon successful completion of the ex-ante analysis, the MA will be able to identify key market gaps and prioritize the allocation of public funds between programs.

The study used methodological instruments including both qualitative methods (interviews) and quantitative methods (desk research). The research carried out on a representative population of enterprises from the SME sector from the Lublin province was used. The research also covered, among others representatives of the MA ROP WL 2014–2020 Lubelskie Voivodeship, representatives of the Department of the Environment and Natural Resources of the Marshal Office of the Lubelskie Voivodeship in Lublin, representatives of the Department of Strategy and Development of the Marshal Office of the Lubelskie Voivodeship in Lublin, representatives of the Lublin Agency for Entrepreneurship Support, representatives of the Regional Fund for Environmental Protection and Water Management in Lublin, final recipients of support, employees scientific and financial intermediaries (Table 2).

Table 2 – Research techniques – managing authorities

No.	Research technique		Description
1.		Existing data analysis (desk research)	► Strategic documentation regarding financial instruments
			► Program, competition and design documentation regarding the activities, selection and functioning of financial intermediaries
			► Reporting documentation on the implementation of financial instruments in the Lubelskie Voivodeship
			► Reporting documentation - reports on the activities of RFEPWM in Lublin for 2014-2018 publicly available on the website http://www.wfos.lublin.pl/sprawozdania-z-dzialalnosci.html
			► Reporting documentation on the implementation of renewable energy instruments and energy efficiency in 2007-2019
			► Studies and analyzes in connection with the ex-ante analysis from the Lubelskie Voivodeship and nationwide
			► Fi-compass studies, EU directives and other legal acts regarding energy efficiency and renewable energy
			► CSO studies on energy efficiency of SMEs and renewable energy
2.		Quantitative research	A representative sample of small and medium enterprises from the Lubelskie Voivodeship
3.		Individual interviews	Interviews under the 2014-2020 perspective with an emphasis on Priority Axis 4 (Measure 4.2. Renewable energy production in enterprises) and Priority Axis 5 (Measure 5.1. Improving the energy efficiency of enterprises) with representatives of:
			► Managing Authorities: (MA RPO WL, BEP, LESA, Department of the Environment and Natural Resources of the UM WL)
			► Financial intermediaries (in the perspective of RPO WL 2014-2020)
			► Financial intermediaries (potencial)
			► Scientific experts: Lublin University of Technology, UMCS, ULS
4.		Expert panel	► Other institutions
			Panel with the participation of the MA ROP WL 2014-2020 Lubelskie Voivodeship, representatives of the Department of Environment and Natural Resources of the UM WL, representatives of the Department of Strategy and Development of the UM WL, representatives of the Lublin Agency for Entrepreneurship Support, representatives of the Regional Fund for Environmental Protection and Water Management in Lublin

Source: own elaboration.

3. ANALYSIS OF MARKET FAILURES, SUBOPTIMAL INVESTMENT SITUATIONS AND INVESTMENT NEEDS

The market failure concept refers to the non-functioning aspects of the market, in our case relating to the financing of energy efficiency in the industrial sector: these aspects determine an inefficient allocation of resources and involve the underproduction (or overproduction) of services.

The types of market failures that typically affect the low-carbon economy can be categorised as follows:

- structural macro-economic failures,
- demand-side market failures,
- supply-side market failures.

Sub-optimal investment situations concern the underperformance of investment activities: a sub-optimal investment situation is where there is a portfolio of economically viable projects but for one reason or a combination of reasons, there are barriers to making them financially viable³.

Market errors for the Lubelskie Voivodeship have been analyzed below. The analysis period covered the months of June – October 2019. The analysis used the Market failures questionnaire (A.T2.1) with notes for the Lubelskie Voivodeship, which is an attachment to this study.

3.1. Identifying existing market problems

3.1.1. Structural macro-economic failures

a) Negative externalities

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

An example can be represented by the costs sustained collectively for the consequences on the environment and on health due to the use of fossil sources, which are reflected on the level of companies taxation and do not allow for a proper investment evaluation.

b) Lack of adequate regulatory

Adjustment to financial regulatory frameworks to better support capital market innovation, ensure that risk assessment and related capital requirements for long-term energy efficiency investments correctly reflect their risks and develop market potential more innovative sources of financing for energy efficiency and lack of regulatory certainty and stability.

³ Questionnaire on market failures analysis, Internal document in the FIRECE project, p. 2.

3.1.2. Demand-side failures

a) Asymmetric and imperfect information

Imperfect information is problematic when the project sponsor does not understand the potential for energy savings or resource generation. Moreover, even if the project sponsor understands the energy efficiency potential, it is often faced with competing priorities or the need for action on the core business that drains the available financial resources. MAs should identify the amount of marketing and project development activity that is currently being supported in the market and consult with public and private sector stakeholders as to whether this is sufficient.

b) Small size of projects and high transaction costs

One of the main problems for funds seeking investments in energy efficiency and renewable sources is the often reduced size of projects and the relatively high transaction costs needed to place them on the market: overcoming this failure requires standardized contracts or the possibility of merging multiple projects with different risk profiles and dimensions to create an attractive financial perspective. This approach may require significant financing of technical assistance. Furthermore, high transaction costs can be caused by long administrative procedures required for project approval.

c) Scarcity of investment-ready projects

Even if there is access to finance, there is difficulty in preparing bankable projects, due to lack of information or inadequate technical and organizational preparation.

- The benefits are in the form of savings rather than revenues, making it harder to secure cash flows.
- Savings can be hard to measure due to the difficulties of metering and the influence of variables such as weather and changes in usage patterns.
- There is little standardisation in project development and documentation.
- Projects are often part of larger projects with other purposes e.g. building modernisation.
- Energy efficiency assets are usually embedded into buildings and processes which presents difficulties for asset finance models.
- The split incentive in commercial property whereby the tenant benefits from energy savings whereas the landlord makes the investment.

d) The bank reliability problems of the company

The financial leverage ratio, understood as debt to equity ratio, is considered too high.

3.1.3. Supply-side failures

a) A lack of access to appropriate finance/ high project risks

Capital markets are not used to invest in energy efficiency and are unable to accurately assign the risk price. Lack of finance, especially for SMEs and start-up. Investments in efficiency are considered at a level of risk such as to require high levels of interest rates or high level of subsidized financing.

b) A lack of capacity or experience in the supply chain

Energy Service Companies (ESCOs) are very important in the market for, and implementation of, energy efficiency projects across the EU. ESCOs need a strong legal framework including public procurement framework, some fiscal incentives, technical and practical experience of using EPC, the capacity to arrange and manage financing and sufficiently developed project pipelines: these conditions are not found uniformly across Europe.

Other issues are found further down the supply chain in terms of the contractors that undertake the retrofit works: many countries have a lack of skilled workers who know how to undertake the works required and this can be a real market failure.

c) Sub-optimal investment situations

A project has a positive IRR (Internal Rate of Return), but is not attractive for private financing due to a variety of factors including:

- high risk perception,
- unfamiliar asset class,
- long maturity or a lower IRR than deemed attractive.

The grant element in an FI and the information an FI can provide can make these investments more attractive.

d) There is a gap between the demand for investments in energy efficiency and the Regional Energy Plan goals

Calculate the investment gap as the difference between the level of investment required to reach the target and the current level: use qualitative and quantitative analysis of project typologies, funding available and experience to identify the types of investments that could be appropriate for an FI; estimate the investment gap in the Programme priorities through calculating the difference between the amount invested to date and an estimation of the amount needed to meet identified objectives.

3.2. Establishing the evidence of market failure and sub-optimal investment situations

3.2.1. Structural macro-economic failures

The most important documents defining the current energy efficiency policy in Poland include:

- Polish Energy Policy until 2030,
- Act on renewable energy sources of 20/02/2015 (Journal of Laws 2015, item 478), Act of 20/05/2016 (Journal of Laws 2016, item 831), as amended from 19/07/2019,
- National Action Plans (NAPs) for energy efficiency (1, 2, 3, 4 NAP from 2007, 2012, 2014, 2017 respectively), which were required by the directives 2006/32 /EC and 2012/27/EU⁴.

⁴CSO Report, *Energy efficiency in Poland in years 2007–2017*, Warsaw 2019, p. 38.

The Fourth Action Plan (4 NAP) on energy efficiency, adopted in 2018 and prepared in 2017, summarizes the achieved energy efficiency goals, presents 2020 goals and updates activities and measures taken and planned to achieve them. With regard to legal regulations, the Energy Efficiency Act was adopted in 2011 (Journal of Laws 2011 No. 94, item 551), the aim of which was to develop mechanisms that stimulate the improvement of energy efficiency. The Act primarily introduced the obligation to obtain the appropriate number of energy efficiency certificates, the so-called white certificates by energy companies selling electricity, heat or natural gas to end users connected to the network on the territory of the Republic of Poland. The Act of 2011 was replaced by the new Energy Efficiency Act of 20/05/2016 (Journal of Laws 2016, item 831) aimed at further improving the energy efficiency of the Polish economy and ensuring the implementation of the national energy efficiency target. The Act introduced a regulation according to which a public sector entity may implement and finance projects on the basis of an agreement on improving energy efficiency. All Polish public authorities are required to purchase energy-efficient products and services. They must buy or rent energy-efficient buildings and fulfill energy efficiency recommendations in buildings being modernized and rebuilt, owned by the State Treasury⁵.

On 29/08/2019, the Act of 19/07/2019 amending the Act on renewable energy sources and certain other acts entered into force, which provides the basis for this year's RES auctions, also includes new solutions for energy cooperatives and prosumers, among others extension of the prosumer definition. The purpose of the changes is to implement additional actions aimed at achieving the goal of a 15% share of energy from renewable sources in gross final energy consumption by 2020, increasing energy security and enabling an auction for the purchase of electricity from renewable energy sources (RES), which is the subject of the sale in auctions in 2019. The prosumer status will be available to small and medium entrepreneurs who are not „professional” energy producers – electricity generation is not the subject of their prevailing economic activity. The new regulations extend the definition of a prosumer who will now be able not only to generate energy and sell it to the obligated seller on certain conditions but also to any other seller on the conditions agreed with it. However, some provisions of the amendment enter into force later. From 01/01/2020, changes in definitions, including biogas, or entries in the maximum allowable age of installations that will generate energy for the first time.

Sources of financing for energy improvement measures:

- The source of financing projects aimed at improving energy efficiency are Regional Operational Programs (ROP). According to the Partnership Agreement, 60% of the structural funds (European Regional Development Fund and European Social Fund) are allocated to 16 regional programs in the years 2014–2020. Each of the voivodeships has a certain part of all financial resources available in the program and is developing its ROP. In the case of selected ROPs, based on ex-ante analyzes

⁵ *Ibidem*

carried out, support under broadly understood energy efficiency is available under financial instruments. Beneficiaries, type of undertaking and financing method are determined individually for each voivodeship, however within specific thematic objectives and investment priorities⁶.

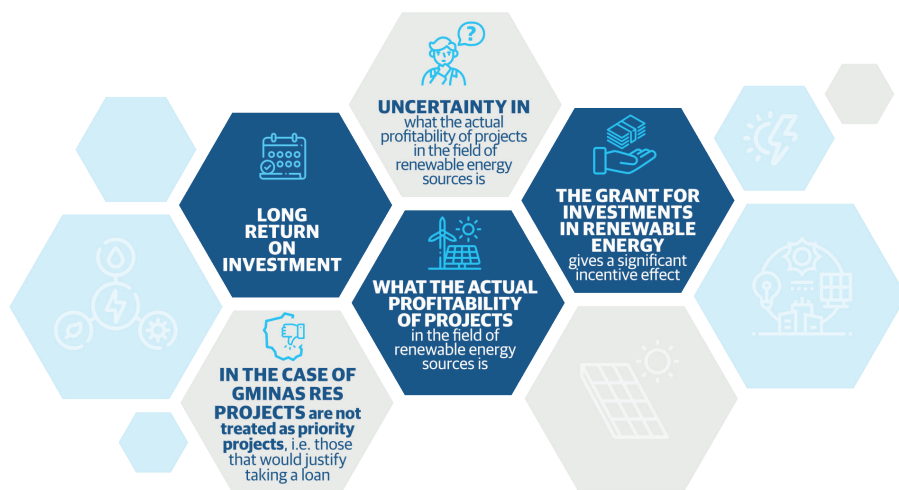
- Energia Plus Priority Program (horizontal) – the goal of the program is to reduce the negative impact of enterprises on the environment, including improvement of air quality, by supporting investment projects. Activities in accordance with the “Declaration of the Minister of Energy of 23/11/2016 on a detailed list of projects to improve energy efficiency” aimed at improving energy efficiency, as well as aimed at technological changes in existing facilities, installations and technical devices. Beneficiaries are entrepreneurs within the meaning of the Act of 06/03/2018 Law of Entrepreneurs pursuing economic activity. The program is implemented in the years 2019–2025.
- Support for projects in the field of low-carbon and resource-efficient economy: Part 4) EWE Energy Efficiency in Enterprises. The call for proposals was extended until 28/12/2018. Beneficiaries are entrepreneurs within the meaning of the applicable Act of 02/07/2004 on freedom of economic activity, conducting economic activity in the form of an enterprise within the meaning of art. 551 of the applicable Act of 23/04/1964 Civil Code. The program is implemented in the years 2017–2023.
- A national support system for the public and housing sectors as well as enterprises in the field of energy efficiency and renewable energy. The project is financed under the Operational Program Infrastructure and Environment for the years 2014–2020 under the framework of Priority Axis I “Reducing the emission of the economy”⁷.

In the case of the Lubelskie Voivodeship, the ROP axes in accordance with the main goal of the FIRECE project regarding SMEs are Priority Axis 4 *Environmentally friendly energy* (Measure 4.2. *Renewable energy production in enterprises*) and Priority Axis 5 *Energy efficiency and low-emission economy* (in particular Measure 5.1. *Improving the energy efficiency of enterprises*). In both Measures 4.2. and 5.1. ROP LV in the 2014–2020 period was used for grant support.

⁶ *Ibidem*, p. 46.

⁷ *Ibidem*, p. 41.

**The use of grant instruments in the framework of Measures 4.2.
is prejudged by the following arguments:**



Graphic 2 – Arguments for using grant instruments – Measure 4.2

Source: own elaboration.

**The use of grant instruments in the framework of Measures 5.1.
is prejudged by the following arguments:**



Graphic 3 – Arguments for using grant instruments – Measure 5.1

Source: own elaboration.

The objective of both Measures is an implementation of tasks that contribute to the fulfilment of the obligations arising from the so-called energy and climate package of the European Union and the Europe 2020 Strategy. The Measures are aimed at creating a competitive market for renewable energy which is supposed to become one of the elements of sustainable development of the region and meet the growing energy needs of the local economy. The use of grant instruments in the framework of those Measures is prejudged by the following arguments:

- long return on investment,
- uncertainty in what the actual profitability of projects in the field of renewable energy sources is (resulting from – among others – legal solutions not fully favourable to investors), risk to the producing energy cost and sales cost of electricity or heat to a network difficult to estimate,
- in the case of gminas RES projects are not treated as priority projects, i.e. those that would justify taking a loan,
- the grant for investments in renewable energy gives a significant incentive effect.

The objective of the Measure is to achieve high energy efficiency in business through the implementation of multidirectional and complex tasks in various fields, i.e. heating, ventilation, cooling, domestic hot water preparation and lighting of premises; as well as the wider use of energy from renewable and unconventional sources. Arguments for the use of grant support are:

- low level of projects profitability long-term return on investment),
- the predicted low demand for this type of projects,
- the difficulties associated with the implementation system of financial instrument, requiring additional incentives.

3.2.2. Demand-side failures

In the last five years, over 2/3 of enterprises needed to finance their operations in the Lubelskie Voivodeship. Most often they applied for credit (42%), leasing (36%), and/or subsidy (28%). The loan has been less important so far (12%), the capital contribution is marginal (used by only 3.4% of companies). Almost 1/3 of all enterprises (31%) when trying to obtain external support was limited to one source, 17% – to two, 13% – to three, and 4% – to at least four of the five listed in the survey. Therefore, diversification is significant, which indicates the need to maintain various forms of financial support in the next financial perspective⁸.

The demand for external capital is mainly reported by medium (80%) and small (77%) enterprises. In the case of micro-enterprises, the interest in external financing sources is much weaker – about 56% of entities applied for these funds, including only 50% of self-employed. The low percentage for micro-enterprises is largely due to their low propensity to undertake investment activities (often due to no guarantee). Returnable measures (from credit, loan or leasing) more often than micro enterprises

⁸ Final report, *Ex-ante evaluation of ROP LV financial instruments 2014–2020*, p. 6.

were interested in small and medium-sized enterprises – at least one of these sources of financing was applied for by 71% of small and 70% of medium-sized entities against 48% of micro-enterprises. SMEs in the Lubelskie Voivodeship most often use leasing or credit. There are differences between entities of different sizes – in the case of micro-enterprises, all three sources are more or less equally popular, with credit (32%) first, subsidy (22%) last. In the case of small enterprises, credit and leasing are chosen by slightly more than half of entities, while the subsidy reached 30%. Credit is the most popular external source of financing also for the case of medium-sized companies (60%), but in their case, the interest of applicants for leasing and subsidies is also high (44–49%). In the case of loans and subsidies, but also loans, the interest in them increases with the size of the company. Only 24% medium, 14% small and 7% micro enterprises applied for the loan. Equity capital to a similar extent was a potential source of financing for the activity of primarily medium-sized enterprises (10%), much less often – micro and small (2% each).

About 60% of entities applied for a loan, a loan of less than PLN 250,000, the corresponding percentage for leasing is 70%. In the case of subsidies, the most common amount was between PLN 100,000 and PLN 1 million (42% of entities). It is also worth noting that the amount exceeding the highest surveyed threshold – PLN 4 million, was requested by 8–9% of potential borrowers and borrowers, in the case of subsidies the corresponding percentage reached almost 7%, while among the lessees there was no such transaction.

For both of the most popular types of commercial repayable funds, there is a clear difference in capital requirements for enterprises of all sizes – half of the medium-sized enterprises applied for a loan worth at least PLN 1.7 million, while for small enterprises it was not less than PLN 384,000 and for micro – not less than PLN 100,000 1/4 of medium-sized companies applied for loans worth over PLN 4 million, another 8% – between PLN 2 and 4 million. In micro and small enterprises, the corresponding percentages are much lower – for both ranges, it was approx. 3% and 11%, respectively. These entities were also interested in high loans. As many as 27% of micro enterprises applied for a loan amount not exceeding PLN 50,000, in the case of medium-sized enterprises there were no such situations. In the case of micro-enterprises, the largest polarization of entities took place: for credit and leasing in the range up to PLN 250,000 (respectively, 73% and as much as 90%). And for small businesses – for credit, it ranges from PLN 100,000 up to PLN 1 million (54%), while for leasing – between PLN 50,000 and 500,000 (77% of entities). The polarization of medium-sized companies is much smaller, but it should be emphasized that almost 70% of them applied for leasing in the amount of between PLN 100,000 and PLN 1 million, and 40% – for a loan of PLN 100,000 – PLN 1 million.

The majority of enterprises applied for credit in commercial banks (39%, out of which the offer of commercial banks seeking external support was selected by 62–67% of micro and medium entities against approx. 49% of small ones) or leasing in a leasing

company other than bank (14%, respectively – 19% medium, 21% micro and 25% small companies that applied for external financing). Cooperative banks' offer was much less popular (12% – small companies reached for it twice as often as micro and medium-sized ones) and other specialized entities, including loan funds and credit unions (indicated only by 4 and 1 companies, respectively).

The loan granted to enterprises was usually a revolving loan (irrespective of the size of employment, this applies to approximately half of the companies using the loan – 46% micro and 54% other). The loan obtained by approximately 34% of enterprises was an investment loan, with small and medium-sized enterprises (39% and 44%, respectively) using it slightly more than employing less than 10 employees (26%). Also, 34% of entities (31% micro, 37% small and 38% medium) used overdraft facilities. The loan also often had a trading and investment target (44%). Of the micro-enterprises that were granted loans, the investment loan was used by 30% (in the case of small and medium-sized enterprises the same percentage reached about 50%), while the loan for current operations was most often used by micro-enterprises (57% against 42% medium and 27% small).

Leasing was by far the most important financing source for the purchase of transportation equipment – a passenger car or van/truck or bus (approx. 45% of applicants for leasing, 17% of all enterprises). 11% of leasing applicants wanted to finance the purchase of construction or agricultural machinery, 22% – other machinery or equipment, 1.6% – medical equipment, 1.5% – computer equipment and/or office equipment, 1% – laboratory equipment, individuals they pointed to furniture, specialist measuring equipment, service hall, shop equipment. Almost 3/4 of those applying for a loan (or 32% of all enterprises) decided to do so due to insufficient financial resources. Among loan applicants, this percentage is analogous to micro (71%), small (72%) and medium (75%) enterprises.

A „typical” entity affected by the investment gap is therefore a company starting its business, limiting it locally or regionally, with low profit as well as with low innovation and decreasing potential to incur liabilities. Against the background of these factors, employment, turnover, legal form, as well as the economic and financial situation measured by financial liquidity, sales profitability, level of debt, are even smaller.

In the context of the requirements of the EU Directive on energy efficiency, energy audits for large enterprises have also become mandatory. Based on the results of desk research, it can be seen that in 2007–2012, almost 90% of the examined energy efficiency improvement projects implemented in enterprises did not have energy audits or energy efficiency audits carried out before and after the investment⁹.

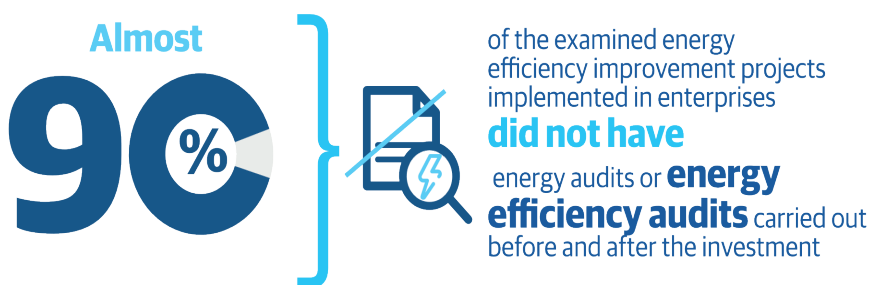
In connection with the above observation, in the context of requirements for energy efficiency audits and the obligation to calculate energy savings in implemented projects,

⁹NEPF Report, *Analysis and assessment of the possibilities of integrating activities in the field of energy efficiency, including renewable energy sources, including municipal waste and sewage sludge*, PWC, 19/09/2013, p. 109.

it is necessary to build a system of incentives for the application of the above-mentioned audit. Current incentives in the form of National Fund for Environmental Protection and Water Management (NFEPWM) subsidies can fill this gap, while they leave the risk of lack of standardized calculation and recommendation methodologies, especially if the legislator does not ensure the availability of certification and qualification systems for energy service providers and energy efficiency audits in relevant regulations.

Conducting energy audits in enterprises is the basis for determining the potential for improving energy efficiency and selecting the most beneficial (in terms of energy and economics) solutions (including the implementation of energy management systems and implementation of investments in improving energy efficiency). The energy efficiency audits carried out in the previous financing perspective to obtain the building's energy certificate were aimed at obtaining financing¹⁰. An important change in the provisions that entered into force along with the amendment to the Energy Efficiency Act (i.e. 01/10/2016) is the obligation to perform energy audits for large enterprises covering a minimum of 90% of energy consumption (all carriers), including through transport. By conducting an energy audit, the company gets information about the possibilities of saving energy. Audit results are used for analysis and control. The energy audit report may be subject to the control of the President of the Energy Regulatory Office (ERO). According to Directive 2012/27/EU – “Minimum criteria for energy audits, including audits carried out under energy management systems” and Art. 37.

Energy audits in enterprises before and after investments in 2007-2012



Graphic 4 – Energy audits – 2007–2012

Source: own elaboration.

¹⁰ *Ibidem*, p. 109.

Energy Efficiency Act of 20/05/2016 – energy audits are based on the following guideline:

- the audit should be based on current, representative, measured and identifiable data on energy consumption and, in the case of electricity, power demand,
- the audit provides a detailed overview of energy consumption in buildings or building complexes, in industrial installations and in transport, which together accounts for at least 90% of the total energy consumption of this company,
- the audit should be based, as far as possible, on a life cycle cost analysis of the building or building structure and industrial installations, and not on the payback period, so as to take account of long-term energy savings, residual values of long-term investments and discount rates¹¹.

3.2.3. Supply-side failures

According to the guidelines on the methodology for ex-ante evaluation of financial instruments, the key in the diagnosis is the analysis of the gap between supply and demand and identification of cases of the sub-optimal investment level. Thanks to this it will be possible to estimate the financial gap. Methodological documents¹² emphasize that the analysis of the gap between supply and demand is a considerable challenge due to the lack of sufficient data necessary to estimate this gap. These data relate to, among others issues such as the scale of rejected applications of entities applying for financing or the percentage of entities not applying for financing due to the belief that there is no chance to receive support¹³. These data were collected through desk research and empirical research among representatives of the demand side, i.e. potential beneficiaries being the subject of investment priorities analysis. The issue of reasons for not granting funding to entities applying for support was taken into account, as it was rightly noted in the guidelines on the methodology for ex-ante evaluation of financial instruments, a certain percentage of refusals to provide support cannot be treated as market failure and included in the gap between supply and demand due to the fact that financial instruments should not support all projects, but only high-quality projects¹⁴.

Due to the pressure of European legislation and the emergence of new requirements, consisting in tightening standards regarding the technical parameters of equipment and buildings, the way of spending EU funds has changed significantly.

The financial gap was estimated and analysed based on three methods: studying the CSO statistics, the AFN model for capital demand, and a survey conducted among enterprises of the Lubelskie Voivodeship. In the light Of the two measurements results (GUS data and AFN model), it was assumed that the annual financing gap for enterprises of the Lubelskie Voivodeship is at the level of approximately PLN 300 million.

¹¹ CSO Report, *Energy efficiency in Poland in years 2007–2017*, Warsaw 2019, p. 43.

¹² https://www.fi-compass.eu/sites/default/files/publications/manual_ex-ante-quick-reference-guide.pdf

¹³ *Ex-ante assessment methodology for financial instruments for 2014–2020*, Quick guide, p. 14.

¹⁴ *Ex-ante assessment methodology for financial instruments in the 2014–2020, programming period*, General methodology covering all thematic objectives, p. 43.

With data on expenditure on innovation made by industrial enterprises of the Lubelskie Voivodeship (CSO), there was also estimated the innovative enterprises' debt financing gap, including the external financing gap of entities performing R&D activities in the Lubelskie Voivodeship which was estimated at PLN 42 million per year.

Based on the survey the SME financing gap was characterized qualitatively, i.e. who and what types of projects cannot get the external financing on the market.

It has been established that in the past five years, in the Lubelskie Voivodeship over 2/3 of enterprises needed external support to operate. The most frequently they applied for loans (42%), leasing (36%), and/or grants (28%). The demand for external capital is reported mainly by the medium-sized enterprises (80%) and the small ones (77%). It seems to be significant that almost 3/4 of those applying for a loan (who represent 32% of all enterprises) decided to do that because of the lack of sufficient funds¹⁵.

Analysis of the study reveals that financial gap concerns in particular enterprises with less of a potential – individuals' businesses employing up to 9 workers, with lower turnover and profit, operating for a short time, locally or regionally. The occurrence of the financial gap on previous investments, or failure to obtain external funding in the past, did not have a material effect on the future investment plans of enterprises in the Lubelskie Voivodeship, i.e. it does not prevent them from investing. In the case of the planned financing of an investment with a bank loan, the expected average interest rate is 5.13%, while the optimal crediting period should reach (on average) 6–7 years¹⁶.

3.3. Assessing market failures: two practical examples

3.3.1. Sources of financing for energy improvement activities in SMEs

Sources of financing business operations in the Lubelskie Voivodeship in the last three years due to the usually required own contribution, the majority of enterprises (85%) used, among others own funds of the enterprise (for medium enterprises this percentage reached even 91%), some of them – 37% (mainly micro – 44%) also used the owner's own funds. There is a great similarity between micro and small enterprises in this respect. Among the sources of external financing, similarly as in the long term, the most important were credit (33%) and leasing (25%). In this case, small and medium-sized companies are more similar, and micro-entities have used it much less often. In the last three years, 15% of enterprises (but, as much as 26) medium-sized enterprises) have benefited from subsidies from EU funds, and 12% – to a similar extent micro, small and medium – from loans from the banking sector.

About 6% of enterprises, mainly micro (10%), also used a loan from family or friends. Subsidies from sources other than the EU and loans from outside the banking sector were mainly used by medium-sized companies (14% and 10% respectively). Moreover, the capital contribution was relatively most often used by medium-sized

¹⁵ *Ibidem*,

¹⁶ *Ibidem*, p. 44.

companies, but also in their case it is a marginal source of financing for the business compared to other companies. Individuals also pointed to the state and local government budget, donations, trade credit, National Health Fund, refund of Social Insurance Institution contributions, support from the Ministry of Agriculture and Food Economy. None of the surveyed enterprises issued shares or bonds.

3.3.2. Availability of financing sources and lack of search for commercial funds

The availability of individual sources of external financing varies. Despite efforts, 8% of enterprises did not obtain credit, much more loans (15%) and leasing – 5% of applicants. The refusal decision was much more frequent in the case of subsidies and capital contributions – this concerned, respectively, 22% and 36% of applicants for such financing.

Access to credit and leasing is the better, the larger the enterprise, and to subsidies – in the case of micro-enterprises it is definitely lower than for small and medium-sized enterprises. As for the loan, small enterprises most often received a negative decision.

Most enterprises received support in the expected amount – it was different in the case of 5% of potential borrowers (usually the requested amount was reduced by as much as 20–50%), in the case of 5% of borrowers (reduction was 30–60%), 5% of lessees, 4% of applicants for a grant (reduction of 20–50%) and 6% of those applying for a capital contribution (reduction of 40%). The loan and loan, which could not be obtained, were more often intended for working capital than for investment purposes, much less often it was to be an overdraft¹⁷. The reason for the refusal decision was presented to the applicant only in the case of credit. The survey results indicate that SMEs in Lubelskie Voivodeship, as well as across the country, have the biggest problem with the provision of sufficient collateral. The problem with the lack of collateral particularly concerns micro and small enterprises.

Main causes for not obtaining repayable funds from commercial sources:

- credit:
 - no/insufficient collateral (0.6% of all enterprises),
 - no market prospects, too large scale of investment, negative result of the activity (0.2% of all enterprises each).
- loan:
 - no/insufficient collateral (0.2% of all enterprises),
 - operations negative result (0.2% of total enterprises).
- leasing:
 - the owner resignation (0.2% of the total)¹⁸.

Nevertheless, on a national scale, the lack of adequate collateral was also the main reason for not granting repayable funds (and more specifically credit). The barriers mentioned were: lack of credibility due to previous financial results, too short a period

¹⁷ *Ibidem*, p. 8–9.

¹⁸ *Ibidem*, p. 10.

of business activity and – characteristic for innovative products – difficulties (on the side of a financial institution) in assessing the market perspectives of a product being the subject of research and development works¹⁹.

Further causes for not applying for commercial repayable measures arise from both subjective considerations (risk aversion, belief that the risk associated with the use of commercial repayable measures is too high – 9%, clearly more often it concerns micro-enterprises – 12%). Barriers for borrowing, loans and leasing are also in the system of their granting – representatives of micro enterprises in an analogous degree (4–5%) believe that the interest rate and collateral requirements are too high and the procedures too complicated (in the case of medium-sized companies this opinion appeared much less frequently – 1–2%). It is clear that the creation of more preferential and clearer financing rules for micro and small enterprises should contribute to the increase of their interest in commercial returnable means. It is also significant that 3% of SME management representatives (including 4% micro) are convinced that they will not get a loan, loan or leasing anyway, 2% believe that companies like theirs are discriminated against by banks, 2% stops financial inability to pay installments. In the case of medium-sized enterprises, the polarization of responses is significant – most of them pointed to having sufficient equity. Micro enterprises are much more diversified and accumulate many factors at the same time. Other justifications included opinions such as „lack of need/interest”, „unwillingness to commitments, despite financial liquidity”, „lack of opportunities”, „lack of knowledge”, „too short a period of operation”, „lack of appropriate programs”, „lack of work on the market”, „the industry is dying out”, „instability of the national economy”, „concerns about the possibility of effectively consuming the loan in extremely seasonal production”, „other investments”, „company specificity”, „the company is too small”. The ranking of reasons for not applying for a bank loan was analogous (with the percentage of responses usually not exceeding 1%, and for two main reasons – around 2–4%). Among other justifications listed by the respondents, there were statements: „other offers were more favorable”, „failure to obtain a subsidy with which the loan was associated”, „lack of creditworthiness”.

¹⁹ *Ibidem*, p. 10.

4. ASSESSMENT OF THE FINANCIAL INSTRUMENT'S ADDED VALUE

Implementation of projects using financial instruments is a direct result of their use. It should be emphasized, however, that it is important to put a lot of emphasis on recognizing the occurrence of added values appropriate for the use of individual types of financial instruments, which go far beyond the thematic specificity of implemented projects and cover broad socio-economic consequences. It is important that the designed solutions maximize the added value while minimizing the risk of related negative phenomena²⁰. The added value of a financial instrument can be analyzed in two dimensions. One of them is the quantitative (financial) dimension. They manifest themselves primarily in the level of multiplier effect/leverage obtained and in additional private resources mobilized by final recipients through repayable financing. In qualitative terms, the subject of the analysis is all those changes that take place in the real economy as a result of intervention using financial instruments.

4.1. Analysis of the quantitative and qualitative dimensions of the financial instrument's added value

Financial instruments such as loans or guarantees are relatively simple in terms of administrative preparation and applying for them, they are associated with serious inconvenience regarding the taking over of all investment risk by the beneficiary. For this reason, the beneficiary may not be motivated to implement innovative projects but but has a high risk of failure. In addition, the privilege of banking institutions in providing support is indicated, however, in this case, the issue of the implementation system remains largely the responsibility of the MA and its requirements for intermediaries. It is also worth verifying two other potential disadvantages of using FI, i.e. high service costs as well as direct and indirect costs of financial intermediation. The fact is that developing a system for the application of FI will be time-consuming and laborious, but once developed, the solution has a chance to last for a long time (even after the current perspective has ended). It is also worth considering that applying for subsidy support under the framework was and is a complex process. For this reason, it is difficult to say unequivocally that with regard to FI it will become significantly more expensive. Finally, the risk of overcapitalisation should be pointed out, but in this case – when only piloting on a small scale is assumed – its occurrence is very unlikely.

In 2007–2018, the funding sources for the renewable energy sources (RES) development provided in returnable forms were funds for environmental protection and water management, i.e. the National Fund for Environmental Protection and

²⁰ Report *Ex-ante evaluation of the desirability of using financial instruments under the Rural Development Program for years 2014–2020*, p. 81.

Water Management and the Regional Fund for Environmental Protection and Water Management in Lublin. Particularly noteworthy are the fund's experience related to the implementation of the program supporting projects in the field of renewable energy sources and high-efficiency cogeneration facilities. As part of it, competitions were conducted. They were implemented to varying degrees due to delays associated with the implementation of the Renewable Energy Act. Uncertainty related to the shape of the planned regulations was the reason for the suspension of investment decisions by many investors, despite the applicant's initial interest.

Measure 4.2. (*Renewable energy production in enterprises*) and Measure 5.1. (*Improving the energy efficiency of enterprises*) joint (mixed) forms of support are proposed²¹:

- For SMEs – loan and subsidy
- For micro enterprises – loan + guarantee + subsidy or loan + subsidy

Analysis of the value-added quantitative dimension

Some types of projects under Measure 4.2. was financed from the resources of the Regional Fund for Environmental Protection and Water Management in Lublin (RFEPWM) – mainly construction of solar power generating units – solar farms.

Energy efficiency

The Regional Fund for Environmental Protection and Water Management in Lublin finances thermomodernization of buildings as part of air protection activities. Priority projects of the Fund for Environmental Protection and Water Management in Lublin in this area planned for co-financing in the years 2015–2020 provide support – in addition to thermomodernization of buildings – among others: generation of electricity and heat in cogeneration, connection to the network for units producing electricity and combined heat, generation and distribution heat, liquidation of low emissions²².

The main goal of Measure 4.2 *Renewable energy production in enterprises* is the implementation of tasks contributing to the fulfillment of obligations arising from the so-called the European Union's energy and climate package and the Europe 2020 Strategy. The activity is aimed at creating a competitive renewable energy market, which is to become one of the region's sustainable development elements and meet the local economy's growing energy needs. Support will be provided to ensure diversification of energy supplies and to increase the region's energy security, using its natural conditions and potentials, in accordance with the voivodeship program for renewable energy support, implementing the assumptions of the Energy

²¹ Pursuant to Regulation 1303/2013, Article 37, item 7: «Financial instruments can be combined with subsidies, interest subsidies and guarantee subsidies» and point 9 «combined forms of support may cover the same expenditure».

²² Action strategy of The Regional Fund for Environmental Protection and Water Management in Lublin for 2017–2020, September 2016, pp. 17–19.

Security and Environment Strategy. Under the Measure, among others, projects consisting of²³:

- construction and reconstruction of infrastructure for the energy production from renewable sources,
- construction of installations for the production of 2nd and 3rd generation biocomponents and biofuels,
- construction or modernization of electricity and heat generation units, using solar and bio-mass in the first place, but also biogas, wind and water energy, along with the construction and modernization of distribution power networks fully dedicated to connecting new energy generating units from RES,
- construction of local, small energy sources producing both electricity and heat for local needs, not requiring transmission over long distances, and improvement of heat generation efficiency by changing heat sources into high-efficiency cogeneration units (distributed cogeneration based on identified local resources),
- connection of generation units to the nearest existing network (as part of the network construction and modernization).

Projects in this field are profitable (profitable) projects²⁴. Projects may lead to new sources of revenue for beneficiaries (sale of energy or heat to the grid), increase in existing revenues or reduction of running costs (energy production for own needs). The generated stream of money (in the form of income or savings) can be used to repay the liability²⁵. It can be seen that in the evaluation study of Measure 9.4. Generation of energy from renewable sources of the Operational Program Infrastructure and Environment indicates that due to the high profitability of most investments from this Measure, subsidy support is not an optimal form of public intervention. Therefore, there is a risk of idle loss, i.e. co-financing of the investment, which would have a chance to be implemented also without receiving a subsidy from public funds. However, other studies indicate that reducing the amount of subsidies for some co-financed projects could mean that they could not be implemented²⁶.

The profitability of already completed investments was to some extent confirmed by the beneficiaries of Measure 6.2. ROP LV for the years 2007–2013. As many as 4 out of 9 respondents of the survey concluded – with more or less certainty – that the project implemented by the entity they represented generated revenue (it brought financial benefits in the form of income, reduction of current costs, etc.). According to most surveys, the payback period will be longer than

²³ Report, *Ex-ante evaluation of ROP LV financial instruments 2014–2020*, p. 169.

²⁴ Report, *Ex-ante evaluation of financial engineering instruments under RPO WP 2014–2020*, Marshal's Office of the Podkarpackie Voivodeship, WYG PSDB.

²⁵ Report *Ex-ante evaluation of financial instruments of the Regional Operational Program of the Świętokrzyskie Voivodeship for the years 2014–2020*, WYG PSDB Sp. z o.o.

²⁶ Report *Assessment of the impact of investments under Measure 9.1, 9.4, 9.5, 9.6 and 10.3 of the OP I&E on the implementation of obligations under Directive 2009/28/EC*, Institute for Structural Research.

5 years. The profitability of already completed investments was also confirmed by some representatives of entities that unsuccessfully applied for support. Over half of the respondents expect a return of the invested money. However, the return is usually to take place over a period of more than 5 years from the end of the project. The profitability of already completed investments was also to some extent confirmed by the beneficiaries of Measure 1.4. ROP LV for the years 2007–2013. As many as 8 out of 10 respondents (including only entrepreneurs) considered that the project they had generated revenues (brought financial benefits in the form of income, reduction of existing costs, etc.), although the amount of income/savings from the implementation of such a project within 5 years from the moment of its completion is very diverse. The respondents pointed to amounts up to PLN 10,000 but also for the amount from PLN 0.5 million to PLN 1 million. As many as 11 out of 15 respondents predict that the money invested in the project will pay off in the future. Three respondents indicated that such a return had already taken place. Among respondents who indicated that the return of funds invested in the project will take place in the future, 9 out of 11 indicated that the return period on the project should be longer than 5 years. The profitability of already completed investments was also confirmed by the majority of the entities representatives that unsuccessfully applied for support under Measure 1.4. ROP LV for the years 2007–2013²⁷.

Analysis of the value-added qualitative dimension

The uncertainty about the real profitability of renewable energy projects is quite high. The decrease in the profitability of these projects is affected by uncertainty (risk) as to the cost of energy production (fuel cost), the cost of selling electricity or heat to the grid. Other risk (discussed later in the report) are related to the provisions of the Act on renewable energy sources²⁸. Uncertainty is confirmed by the results of quantitative research, which shows that entities implementing RES investments have difficulties in estimating the amount of revenues that they can obtain from such an investment.

The most important problems regarding the financing this type of projects are related to the uncertainty as to the applicable legal regulations and planned changes in them. All renewable energy investments launched from January 2016 were subject to the new rules – auctioning. In the new RES support system, the increase in new RES capacity depends on the decision of the state administration. It is the Ministry of Economy, the Energy Regulatory Office and the Council of Ministers that decides how much to contract electricity in a given year. Bidders representing various technologies – wind, solar, biomass, biogas and water – compete with each

²⁷ Report *Ex-ante evaluation of the desirability of using financial instruments under the Rural Development Program for 2014–2020*, pp. 169–170.

²⁸ 1) *Ibidem*, p. 170; 2) Report, *Ex-ante evaluation of financial instruments of the Regional Operational Program of the Świętokrzyskie Voivodeship for the years 2014–2020*, WYG PSDB.

other²⁹. The risk resulted from a lack of information regarding the auction system. From January 2016, auctions were to be organized, at least once a year. It is not known, however, what the volume of shares was supposed to be, what reference prices were planned for individual RES technologies or what amount of energy within the auction could come from technologies based on natural forces that work less than 4000 hours a year (4000 MW/MWh/year). The latter element raises justified doubts, because limiting the auction pool for wind, solar or water technologies may be contrary to the principle of technological neutrality³⁰.

The reason for problems in accessing debt financing for investors in renewable energy sources may also be:

- high level of complexity and comprehensiveness of this type of investment (e.g. various types of technologies for a given fuel, access problem or fuel price) making it difficult for banks (especially universal banks) to assess the project's credibility,
- uncertainty as to the profitability of this type of projects (this noticeable uncertainty resounded in the studies),
- structure of Polish commercial banks' liabilities.

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

An important element in analyzing the added value of using financial instruments is the question about their consistency with other sources of public support in the new financial perspective. The coherence under consideration can be analyzed at two levels:

- on the resulting plane – whether the assessed forms of public intervention have a similar or even the same goal and strive to achieve comparable or even similar effects,
- on an operational level – involving the possible simultaneous access of beneficiaries to various intervention forms and whether such access is possible or the use of these forms is mutually exclusive.

In this approach, we can talk about two coherence perspectives – the complementarity and competitiveness perspective between the available forms of public intervention. The first one refers to the complementary forms of support, in particular to possible synergistic effects, the second – to the situation in which the forms of public aid compete with each other, or exclude each other from their use, in principle both perspectives can be considered separately because competitiveness theoretically does not rule out complementarity, although it practically prevents it.

²⁹ Sekściński A., *What has the Renewable Energy Sources Act changed?*, <http://csr.forbes.pl/ustawa-o-oze-w-pol-sce-co-sie-zmienilo-,artykuly,197687,1,1.html>

³⁰ *What about the tariffs guaranteed in the amendment to the RES Act?*, <https://www.gramwzielone.pl/trendy/21759/nowelizacja-ustawy-o-oze-juz-w-sejmie-po-za-taryfami-gwarantowanymi-pis-przeciwko>

In accordance with the characteristics of investment priority 4a, taking into account Measures 4.1. and 4.2., presented in the assumptions of the Regional Operational Program of the Lublin Voivodeship for the years 2014–2020³¹, support under IP 4a shows internal complementarity with the following priorities of the regional operational program³²:

- 4b (Measure 5.1. *Improving the energy efficiency of enterprises*), by reducing the manufacturing sector's energy consumption and increasing the energy production from renewable sources for the production process needs. Support may be granted for building own RES installations only when they are an integral part of the production or functioning system enterprises (if it results from a previously prepared energy audit).
- 4c (Measure 5.2. *Energy efficiency of the public sector*, 5.3. *Energy efficiency of the housing sector* and 5.8. *Energy efficiency of the public sector for ITIs of sub-regional cities*) – by ensuring energy savings in the public and multi-family housing sector.
- 4e (Measures: 5.4. *Low-emission transport*, 5.5. *Promotion of low-emission*, 5.6. *Energy efficiency and low-emission economy for Integrated Territorial Investments of the Lublin Functional Area*, 5.7. *Low-emission transport for ITIs of subregional cities* and 5.9. *Promotion of low-emission for ITIs by subregional cities*) – energy savings in the public sector and ensuring the use of supported biofuel production.
- 6a and 6b (Measure 6.3. *Waste management* and 6.4. *Water and wastewater management*) – through activities supporting the renewable energy technologies development using municipal waste and wastewater for the fuel and biogas production.

At the same time, the study also indicates areas of external complementarity, including:

- The Infrastructure and Environment Operational Program – by promoting the use of high-efficiency heat and electricity cogeneration based on the need for useful heat, support in the field of energy efficiency in public and residential buildings, and implementation of low and medium voltage network investments.
- Joint Technology Initiatives based on Horizon 2020 – in biomass energy and materials usage.

In the content of the Regional Operational Program of the Lubelskie Voivodeship for 2014–2020, areas of complementarity for investment priority 4b, covering only Measure 5.1., were also defined. In the area of internal complementarity, complementarity with the following investment priorities was indicated³³:

- 4a (Measures 4.1. *Support for the use of renewable energy sources* and 4.2. *Production of energy from renewable energy sources in enterprises*) – through infrastructure projects aimed at diversifying energy sources towards renewable energy, which will

³¹ Regional Operational Program of the Lubelskie Voivodeship for the years 2014–2020, adopted by Decision of the European Commission C (2015) 887 of 12/02/2015.

³² *Ibidem*.

³³ *Ibidem*.

increase the energy efficiency of the region's economy through multidirectional and comprehensive actions in various fields and addressed to various entities. The support may cover the construction of own RES installations only if they form an integral part of the production system or enterprise operation (if this results from a previously prepared energy audit).

- 4c (Measures 5.2., 5.3. and 5.8 – *Energy efficiency of the public sector, Energy efficiency of the housing sector and Energy efficiency of the public sector for ITIs of subregional cities*) – through comprehensive buildings energy modernization to ensure emission savings.
- 1b (Measures 1.2. *Targeted research*, 1.3. *Research and development infrastructure*, 1.4. *Technology transfer and commercialization of research*, and 1.5. *Innovation voucher*) – through measures to increase innovation related to the development of low-carbon technologies.

Whereas in the external area, activity 5.1. can be complementary with:

- The Infrastructure and Environment Operational Program – through investments that will lead to an increase in the energy efficiency of the economy, in particular those associated with reducing emissions from construction, heating and transport. Support under ROP LV will be provided to the SMEs sector and commercial law companies in which the majority of shares are held by local government units or their associations.
- The Rural Development Program – by supporting operations that include energy rationalization or the use of renewable energy sources in SMEs engaged in the processing and marketing of agricultural products.
- Eastern Poland Operational Program – through investments contributing to reducing emissions generated by transport.
- The INTERREG EUROPA program to improve the implementation of regional development policies and programs related to the transition to a low-carbon economy at the interregional policies level.
- CENTRAL EUROPE 2020 program in supporting the implementation of the low carbon strategy in cities and regions, reducing energy dependence and cooperation in the field of climate change, as well as supporting low-emission mobility in functional urban areas as part of transnational cooperation of Central European countries.
- The BALTIC SEA REGION program to strengthen regional energy efficiency as part of supporting the creation and testing of management and financing models, as well as technological solutions in the field of energy production and distribution from renewable sources and better energy efficiency.
- The Fisheries and Sea Operational Program through investments in equipment or investments on fishing vessels aimed at reducing emissions of pollutants or greenhouse gases and increasing the energy efficiency of fishing vessels as well as energy efficiency audits and programs related to energy efficiency.

Financial instruments will also compete on the market with similar tools launched from the national level. It is also possible for the competition of capital tools offered by private investors as well as by international organizations and institutions to occur. In both cases, however, this competition will not significantly affect the achievement of the assumed indicators, because:

- capital entries of private investors usually involve less advanced and complex projects with faster returns,
- capital tools from the ROP level are still being developed and it is not known when they will be launched. With a small allocation for this type of activity under ROP, the availability of both tools may be delayed in time,
- programs and competitions financed by international institutions and organizations, such as the Norwegian Financial Mechanism and the Financial Mechanism of the European Economic Area (i.e. so-called Norwegian funds and EEA funds), are often one-off, or targeted at wider, in the geographical sense, target groups (as e.g. to entities operating throughout the country or even a group of countries in the Common) – hence they will not have a broader impact on the implementation of activities in the area of ROP LV, among others due to the fact that both the scope of such initiatives and potential competition between those applying for support leads to the conclusion that the number of beneficiaries in the Lubelskie Voivodeship will be marginal.

4.3. Identifying possible State aid implications

Support provided both under Measure 4.2 and 5.1. taking into account combined instruments, including in their construction a grant, and at the same time targeted at beneficiaries of a commercial nature – i.e. enterprises – can meet the condition of state aid and as such requires an additional assessment in terms of market and organizational consequences. Four conditions are met for classifying financing as State aid³⁴:

- a commitment of funds from the state or from state sources,
- selective nature of the aid – applies to specific industries or specific enterprises,
- a distortion or threat of competition distortion,
- possibility of a trade violation.

The fact that given financing meets the criteria of state aid should be determined at the level of subsequent competitions as well as in the perspective of subsequent beneficiaries and the investment scale.

The first, basic and fairly obvious organizational consequence of the situation in which the state aid takes place is the necessity of notification unless the aid meets the *de minimis* conditions or meets the criteria of other authorization mechanisms – such as GBER. Considering the ranges of beneficiaries' financial needs indicated in the *ex-ante* analysis, as well as the maximum amount of support indicated in the „*Detailed*

³⁴ Szydło M., *The concept of state aid in Community law*, European Studies/European Center of the University of Warsaw, (4)/2012, pp. 33–54.

*Description of Priority Axes of the Regional Operational Program of the Lubelskie Voivodeship for 2014–2020*³⁵, it should be assumed that funding may exceed the maximum amount of de minimis aid, especially considering the three-year period in which the achieved assistance is added together.

At the same time, in the case under consideration, State aid may be relevant from the perspective of competition processes on the market. As the ex-ante analysis shows, activities in both areas are, in principle, profitable, both in the medium and in the long term. Additionally, considering the preferential interest rate on financial instruments, as well as the grant component, investments from both areas:

- contribute to reducing the cost of doing business, by reducing the purchasing energy costs – due to own production or improving energy efficiency, provided that the savings from these titles will be greater than the possible cost of servicing the resulting debt, or
- will contribute to an increase in profit due to the possible sale of generated energy (Measure 4.2.).

In both situations, the profit generated will improve, which will consequently improve the competitive ability and increase the entity's price freedom. Activities from both areas will also increase the value of the entities' fixed assets, which, however, is not a significant factor distorting competition processes. Unfortunately, the detailed consequences of state aid can only be assessed ex-post, due to the need to use data illustrating the market reaction caused by the aid under consideration – the methodologies present in the literature can be used³⁶.

However, the discussed activities will not lead to any key success factors for the industry, will not transfer knowledge and know-how, will not lead to product differentiation, nor will they translate into an increase in market share or increase in the profitability of production alone. The advantage resulting from the reduction of costs should be assessed as moderate – due to the relatively long payback period. In any case, the consequences of state aid are many times smaller than the benefits of achieving and accompanying the objectives of both measures, taking into account, in addition to the implementation of environmental effects, also, inter alia, reducing the load on energy networks by decentralizing energy production sites, as well as protecting and creating jobs, also in enterprises from the high technology sector.

³⁵ Detailed description of the Priority Axes of the Regional Operational Program of the Lubelskie Voivodeship for the years 2014–2020, Annex 2 to Resolution XCII/1914/2019 of the Lubelskie Voivodeship Management Board of 19/11/2019, Lublin 2019.

³⁶ *Ex-post assessment of the impact of state aid on competition. Final report. European Commission, Luxembourg: Publications Office of the European Union, 2017.*

5. ADDITIONAL PUBLIC AND PRIVATE RESOURCES TO BE POTENTIALLY RAISED BY THE FINANCIAL INSTRUMENT

Expectations about financial instruments, one of which is able to attract private investors and public funds, which is particularly important due to budget constraints or when the volume of private investment is not large enough because investors are unsure of the market and prefer to share risk, while ex-ante analysis is able to define the planned structure of financing financial instruments.

5.1. Estimating additional public and private resources

The phenomenon of credit rationing is that loans for some borrowers may be unavailable regardless of the price (interest rate) they are willing to pay. This situation occurs when the interest rate is not the sole factor determining the balance between demand and supply of credit. Under the conditions of restrictions on financial markets, banks behave rationally, introducing so-called credit rationing. Due to the uneven information distribution (so-called information asymmetry) about a given investment project between an entrepreneur and a bank, and problems of so-called agencies, banks may have a serious problem in assessing the scale and type of future and current risks, and monitoring entrepreneurs that have been borrowed capital³⁷.

Therefore, banks should address the problem of risk by setting higher interest rates and possibly requesting additional special collateral for the riskiest projects. If, in fact, the interest rate were a factor ensuring a balance between supply and demand, then in banks' portfolios there can also be observed projects submitted by entities just entering the market, and even projects in the pre-market phase (start-ups). This is not because higher interest rates, paradoxically, instead of offsetting risk (in the form of higher revenues) can lead to a deterioration in the loan portfolio quality as a whole, the loan portfolio quality by cutting off loans to low-risk borrowers (unable or unwilling to pay high interest), and leaving it only risky loans (negative selection).

Credit rationing does not apply to all entities or does not apply to all to the same extent. Several characteristics of micro-enterprises of micro-enterprises make these groups most vulnerable to being in the financial gap area. First of all, micro-enterprises have lower income and profit stability. Secondly, a potential lender usually has limited access to information on the financial status, market perspectives (e.g., unstable market share) and decision-making rationality, lack of professional management, etc.), which weakens the ability to effectively monitor the lending process status³⁸.

³⁷ Stiglitz J. E., Weiss A. *Credit Rationing in Markets with Imperfect Information*. American Economic Review, Vol. 71, Issue 3, 1981, pp. 393–410.

³⁸ 1) Cowling M., *Credit rationing, equity gaps, and policy solutions for financing entrepreneurial business in Europe: Theory, tests, evidence and the design and effectiveness of policy instruments*. A raport to the European

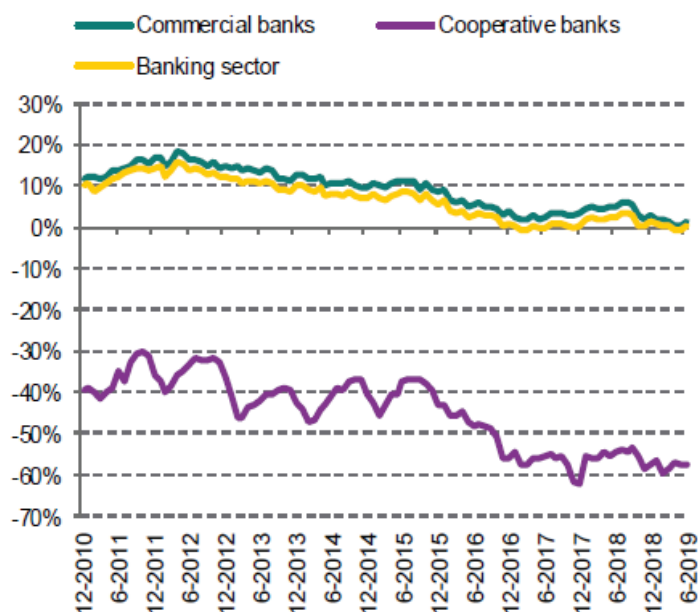


Figure 1 – Funding gap, December 2019

Source: *Data of the Polish Financial Supervision Authority as at September 2019*. Prepared on the basis of NBP reporting data from: 31/12/2019.

In the case of Poland, the banking market has undergone a fundamental transformation over the past two decades. Privatization of state-owned banks, foreign investors entering the market, new forms and channels of distribution development, procedures and legal regulations adjustment to international standards resulted in an increase in the provided quantity and quality services (figure 1). Currently, the banking sector, i.e. 31 commercial domestic banks and 541 cooperative banks and 33 branches of credit institutions, has a total network of over 7,000 branches and 4,000 branches, branches and other customer service outlets. Saturation with banking outlets and services in the Lublin region is much better than such regions such as Podlasie or Warmia-Masurian³⁹.

Commission. Exeter Business School. 27 June 2012; 2) Report *Ex ante assessment of the desirability of using financial instruments under the Rural Development Program for 2014–2020*, p. 52.

³⁹ Data of the Polish Financial Supervision Authority as at September 2019. Prepared on the basis of NBP reporting data from: 18/11/2019.

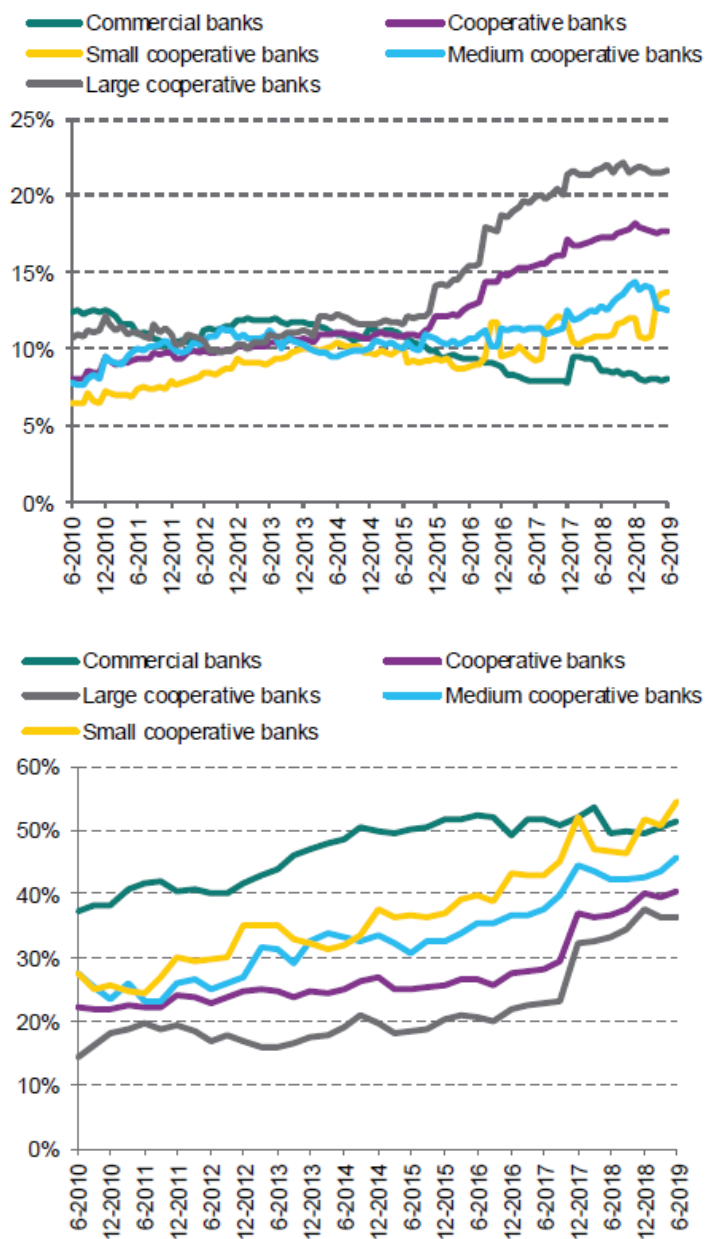


Figure 2 – Impaired corporate loan ratios by type of banks and Coverage of impaired corporate loan ratios by type of banks, December 2019

Source: Data of the Polish Financial Supervision Authority as at December 2019. Prepared on the basis of NBP reporting data from: 31/12/2019.

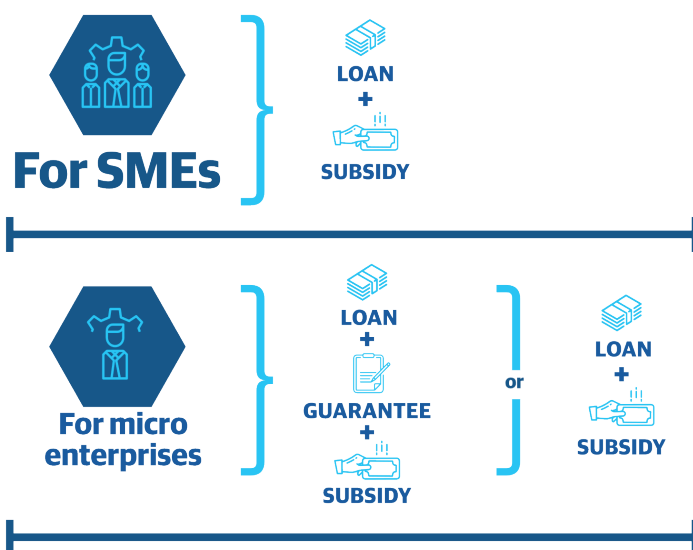
Due to the high innovation of financial markets and their adaptive nature, many forms of private financial instruments have developed so far (figure 2), which are or may be used as part of public intervention measures: loan instrument (fund), capital instrument (fund), co-investment instrument, subordinated loan instrument (fund), guarantee instrument (fund), portfolio guarantee instrument or equity guarantee instrument⁴⁰.

5.2. Estimating the leverage of the envisaged financial instrument

Under Measure 4.2. (*Renewable energy production in enterprises*) and Measure 5.1. (*Improving the energy efficiency of enterprises*) joint forms of support are proposed⁴¹:

- For SMEs – loan and subsidy
- For micro-enterprises – loan + guarantee + subsidy or loan + subsidy

Joint (mixed) forms of support proposed under Measure 4.2.



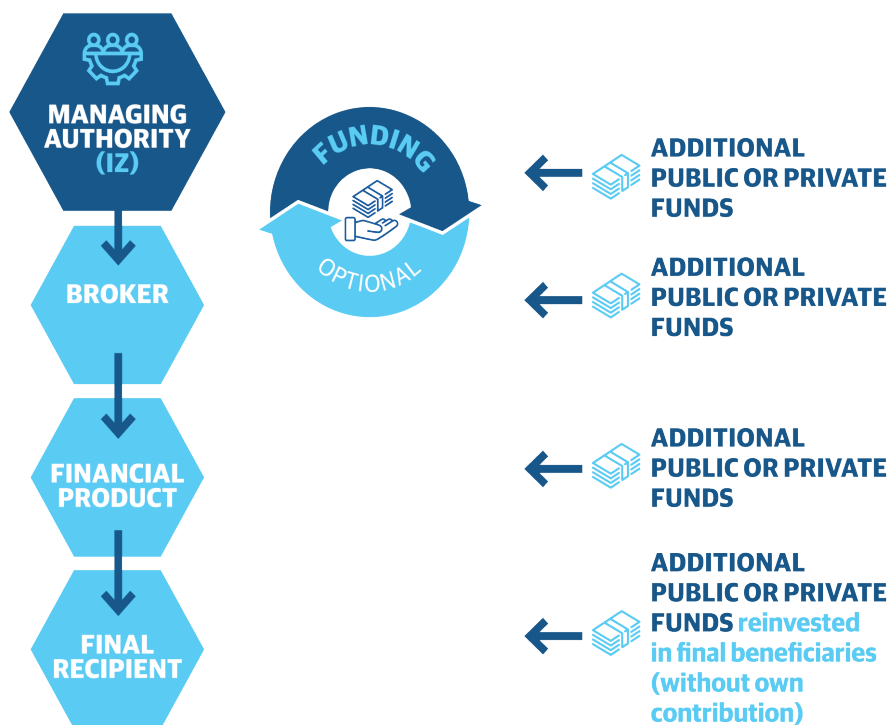
Graphic 5 – Proposed forms of support – Measure 4.2

Source: own elaboration

⁴⁰ Report *Ex ante assessment of the desirability of using financial instruments under the Rural Development Program for 2014–2020*, pp. 54–56.

⁴¹ Pursuant to Regulation 1303/2013, Article 37, item 7: „Financial instruments can be combined with subsidies, interest subsidies and guarantee subsidies” and point 9 „combined forms of support may cover the same expenditure”.

Graphic 4 – Potential additional public and private resources mobilized using financial instruments








Graphic 6 – Potential additional public and private resources mobilized using financial instruments

Source: own study based on the *Ecorys Report Ex ante assessment of the desirability of using financial instruments under the Rural Development Program for the years 2014–2020*, p. 89.

Capital from public sources can stimulate the additional involvement of private capital. One should suggest great caution in interpreting the results and a high probability of achieving a much lower level of the multiplier effect and the leverage effect. This caution is dictated by the results of the European Court of Auditors report, where the multiplier effects and leverage effects of repayable instruments used to support renewable energy sources were in fact much smaller than previously expected⁴². Additional public and private resources can be contributed at all levels of the financial instrument up to the final recipient level, as shown in graphic 6.

⁴² European Court of Auditors, *Are financial instruments a successful and promising tool in the rural development area? Special Report*, No. 5, s. 29, http://www.eca.europa.eu/Lists/ECADocuments/SR15_05/SR15_05_EN.pdf.

Table 3 – Leverage calculation

No.	Category	Indicator
1.	 LEVERAGE AT THE INTERMEDIARY LEVEL (private equity of financial intermediaries or investors)	1.1
2.	 LEVERAGE AT THE LEVEL OF THE FINAL RECIPIENT	2.2
3.	 LEVERAGE AT THE INTERMEDIARY LEVEL (private equity of financial intermediaries or investors)	Assuming a private equity share of 10%, 111% of allocated investment funds will be allocated to subscribing for shares in newly created companies
4.	 LEVERAGE AT THE LEVEL OF THE FINAL RECIPIENT	Assuming that the fund covers an average of 50% of shares, we have a leverage ratio of 2.2 , calculated according to the formula: (item 12x[1/(1-poz.5105)/100%])
5.	 MINIMUM SHARE OF A PRIVATE INVESTOR	At least 5% of the capital input funds are required to be provided by the beneficiary of the capital program. Calculated according to the formula: (item 1x [1 / (1-assumed indicator 106) / 100%])

Source: based on the Final report, Ex-ante evaluation of financial instruments of ROP LV 2014–2020.

5.3. Attracting additional private resources

“Financial gap” (the literature more often refers to “poor access to financing”) is customarily referred to the debt financing market (bank loan) to distinguish it from the so-called equity gap. This term is understood to mean a situation where the entity possessing a profitable project, in the absence of its own (internal) financial resources, is not able to raise external debt (e.g. a bank) to finance it. Generally, there can be two reasons for this: credit rationing and the so-called market failure caused by, among others due to regulatory, institutional, structural constraints, and above all, numerous information problems – asymmetrical distribution (one side of the relationship knows more about the project than the other, information comprehensiveness, high complexity and extensive scope of information that needs to be obtained for the assessment of the project and its risk), the significant cost of obtaining information. It was only in 2018 when in the amendment to the RES Act, the government introduced facilities for small installations and announced significant auction volumes, investors and the banking sector again began to consider engaging in renewable energy sources. The above actions become a motivator to attract private capital. The establishment of new enterprises (often these are start-ups) in the renewable energy sector is noticeable in the Lubelskie Voivodeship.

6. LESSONS LEARNT

6.1. Identifying success factors and past experiences pitfalls

Generally, there is visible uncertainty among entrepreneurs regarding the real profitability of renewable energy projects. The decrease in the profitability of these projects is affected by uncertainty (risk) as to the cost of energy production (fuel cost), the cost of selling electricity or heat to the grid. The risk is also associated with the provisions of the Renewable Energy Act. Uncertainty is confirmed by the results of quantitative research, which shows that entities implementing RES investments have difficulties in estimating the amount of revenues that they can obtain thanks to the implementation of such an investment. Indicated in point 4.1. it also concerns problems in accessing debt financing for investors in renewable energy sources, i.e. a high level of complexity and comprehensiveness of this type of investment (e.g. various technologies for this specific fuel, access problem or fuel price) making it difficult for banks (especially universal) to assess the undertaking's credibility and the assets and liabilities structure of Polish commercial banks.

The currently ending financing percept provides several applications. Photovoltaic projects were the most popular in the Lubelskie Voivodeship. The profitability of already completed investments was to some extent confirmed by the beneficiaries of Measure 6.2. of ROP LV for 2007–2013. The respondents of the survey concluded that the project implemented by the entity they represented generated revenues (it brought financial benefits in the form of income, current costs reduction, etc.). According to most surveys, the payback period should be longer than 5 years.

6.2. Applying lessons learnt to improve the financial instrument's performance

Under Measure 4.2. (*Renewable energy production in enterprises*) and Measure 5.1. (*Improving the energy efficiency of enterprises*) combined (mixed) forms of support are proposed: for SMEs – loan and subsidy, and for micro-enterprises – loan + guarantee + subsidy or loan + subsidy.

IFs would have a much better chance of functioning while providing MA with flexibility when choosing financial intermediaries. He stated the statements regarding “greater flexibility on the part of the state” many times, both during the interviews and the expert panel. In addition, representatives of the MA of the Lubelskie Voivodeship emphasized the need to generate support in the form of a guarantee system for micro-enterprises.

Another conclusion resulting this time from the ex-ante analysis that can be used to improve the reception and results of the financing instrument is the long payback period observed for the projects undertaken, especially highlighted within measure 5.1. As the analysis indicates, a potential instrument must provide long-term financing – over five years.

At the same time, the ex-ante analysis proves the need to use, at least to some extent, the grant component – required to finance part of the investment outlays. Simultaneously, the ex-ante analysis indicates entrepreneurs' high expectations as to the financing form. The adopted financial instruments construction considers both of these conditions.

7. PROPOSED INVESTMENT STRATEGY

7.1. Process to develop a proposed investment strategy

The requirement to develop an investment strategy follows directly from Article 37 (2) (a) e of Regulation No. 1303/2013⁴³, indicating that the ex-ante assessment should include „the proposed investment strategy, including the analysis of implementation options in the sense resulting from art. 38, the financial products to be offered, the final recipients targeted and, where appropriate, the proposed combination with grant support”. Therefore, the investment strategy should be understood as a set of assumptions regarding the design and operation of a specific financial instrument, together with the program of making this instrument available to specific recipients groups, while oriented on achieving the specific objectives of the investment priority within which the instrument is envisaged. The main motivation to develop, and at the same time, the main goal set for the investment strategy is to maximize the quantitative as well as qualitative effects of using the considered financial instrument by matching its character and the manner of implementation and delivery to the market to the expectations and preferences of potential beneficiaries.

The proposed investment strategy presented in the further part of the study is based on the synthesis of conclusions and strategic recommendations presented in the Final Report *„Ex-ante evaluation of financial instruments in RPO WL 2014–2020”*. It has also been developed in a way that ensures consideration of variables and conditions related to the current social and economic situation, current formal and legal and market conditions, as well as the knowledge and experience of the Managing Authority and the development team.

The previously cited Regulation 1303/2013 introduces three requirements in the field of investment strategy for a financial instrument (Article 37, point 2, point e). According to the regulation, the investment strategy should include three areas:

1. analysis of implementation options as defined in art. 38 of this Regulation;
2. financial products to be offered;
3. target, final recipients,
4. assumed a combination of the instrument with subsidy support – if any.

Considering the above requirements, the process of developing the investment strategy proceeded separately for both activities, according to the following stages:

1. Determining target recipients

This is the first and basic step in the formulation of this nature strategic solutions, due to the fact that the target recipient, through their expectations and needs, in particular the diagnosed scope of the funding gap, defines, among others, the financial instrument design, its scope and scale, as well as implementation method – delivery to the final recipient.

⁴³ Regulation (EU) No. 1303/2013 of the European Parliament and of the Council of 17/12/2013 establishing 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 (Journal of Laws of the European Union L. of 2013 No. 347, p. 320, as amended).

2. Defining the target recipients expectations and preferences

At this stage, the nature of the projects implemented by the target recipients was first determined, followed by their preferences regarding financing forms along with potential barriers, as well as factors encouraging and discouraging to various types of solutions, as well as estimating the scope of the capital gap among various sized entities. Both target recipients, as well as their expectations and preferences, were diagnosed within the ex-ante analysis constituting the basis of this study.

3. Determining the financial instrument's nature and objectives

The third stage of defining the strategy became the final financial instrument analysis and selection, along with the decision to apply the combination with grant support, followed by the definition of the amount of support offered and the framework conditions for its provision.

4. Defining how to implement the financial instrument

The final step in the investment strategy developing process has become, based on the assumed recipients group and the the financial instrument desing, management solutions that regulate the process of making the instrument available to beneficiaries, as well as determining the scope, structure and role of the various institutions participating in this process.

7.2. Defining the financial instrument's scale and focus

Taking into account the ex-ante analysis results and the adopted final recipient groups, it is envisaged to implement three financial instruments identical for Measure 4.2. and for Measure 5.1., distinguished by the size criterion of the entity receiving support. All three instruments will be combined and built based on a repayable instrument, in this case, a loan supplemented with a non-returnable instrument – a subsidy, with the possibility of supplementing with a guarantee. On the one hand, the overall conclusions of the ex-ante analysis support the choice of such a solution, and on the other hand the properties and characteristics of both solutions:

1. as a repayable form, the loan will provide funds and possibilities of financing subsequent projects;
2. ex-ante analysis shows that the projects undertaken within both of these activities are profitable, which will reduce the barriers associated with concerns about the possibility of repaying the commitment;
3. subsidy component⁴⁴:
 - a) will reduce the investment costs, thereby accelerating its return and thus repayment of the liability; this is of particular importance given the volatility, but also the regulations vagueness governing the electricity sale generated to the grid;
 - b) reduce the financial costs of servicing the obligation (interest) incurred by the beneficiary,

⁴⁴ In addition, grant support is to some extent preferred by final recipients and will therefore provide an additional incentive to the financial instrument.

- c) accelerates the recovery of creditworthiness, in particular among micro and small enterprises (revolving effect),
- 4. supplementing the instrument with a guarantee may have significance for micro and small entrepreneurs who have little or no creditworthiness.












Concurrently, in all instruments, in the returnable part, it is recommended to use preferential interest rate – in the dimension that allows covering the costs of operating the instrument or completely abandoning the interest rate. Such a solution will provide an additional incentive to use the financial instrument, both by increasing its financial attractiveness as well as by minimizing the risk perceived by the recipients. The first of the proposed instruments, addressed to small and medium-sized enterprises, will be in the combined form, considering the loans and subsidy composition (Table 4), the second (Table 5) and the third (Table 6) – addressed to micro-enterprises, the loan and subsidy form, respectively and subsidies with an additional guarantee.

The assumptions for such defined instruments are:

1. The payback period for both activities in more than half of the cases examined in the ex-ante analysis exceeds 5 years.
2. The subsidy is not the first source of financing this type of investment, however, enterprises show a clear interest in the subsidy in the form of support, and the lack of such the subsidy combined with the uncertainty in legal regulations is a significant barrier in obtaining funds – hence it is recommended to clearly highlight the non-returnable component in the instrument financial statements.
3. The overwhelming majority of projects implemented in both activities are in the range of up to PLN 1 million, but this value is also related to the nature of the project itself.
4. Due to the relatively high cost of projects from both activities, which may reduce their availability for micro-entrepreneurs, at least because of their high value in terms of resources and fixed assets, in this group it is rational to increase the scope of subsidies, as well as grant guarantees to 100% of the value of the debt part of the liability.
5. Concurrently, due to the fact that the cost of projects from both activities is to some extent proportional to the size of the enterprise (and precisely to its infrastructure, including production infrastructure), it is reasonable to use a lower value of the maximum support for micro-enterprises, a larger – for small and medium enterprises.












The allocation of funds between all instruments under a given measure remains the responsibility of the Managing Authority, with a larger scale of funds allocated under Instrument I (small and medium enterprises) being recommended, due to the larger scale and higher costs of projects implemented by these entities. The proposed breakdown is making available 65% of funds under Instrument I and 35% of funds under Instruments II and III. Instruments II and III, due to the same target group, can be distributed jointly from one budget, and the choice of the instrument itself should be left to the applicant's decision.

Table 4. Instrument I – small and medium enterprises – assumptions

Measure		Description
Investment Priority and Measure		4a - Measure 4.2. Renewable energy production in enterprises
		4b - Measure 5.1. Improving the energy efficiency of enterprises
Goal		The purpose of Measure 4.2. is the implementation of tasks contributing to the fulfillment of the obligations arising from the so-called the European Union's energy and climate package and the Europe 2020 Strategy. The action is aimed at creating a competitive renewable energy market , which is to become one of the region's sustainable development elements and to meet the growing energy needs of the local economy . The supported activities are to ensure the diversification of energy supplies and increase the energy security of the region, using its natural conditions and potentials, in accordance with the voivodeship program for renewable energy support, implementing the assumptions of the Energy Security and Environment Strategy.
		The purpose of Measure 5.1. is to achieve high energy efficiency of enterprises through the implementation of multidirectional and comprehensive tasks in various areas, i.e. heating, ventilation, cooling, hot water preparation and lighting of rooms; as well as the wider use of energy from renewable and unconventional sources. Investments serve to meet the demand for heat or for heat and electricity in enterprises. The goal is to create a production system in supported enterprises, taking into account the principles of sustainable use of resources, and improving energy efficiency will affect a more efficient production system, and consequently increase economic competitiveness. Identification of a set of measures to increase energy efficiency in a given enterprise is made on the basis of an energy audit.
Financial instrument type		loan + subsidy
Final recipient		small and medium companies
Maximum amount of unit support		Measure 4.2. - PLN 1.5 million
		Measure 5.1. - up to PLN 500,000
Proportion of instrument components		Loan - from 50% to 75% of the project value
		Subsidy - from 25% to 50% of the project value
		Together, the loan and grant may cover up to 100% of the project value . The proportions of the returnable and non-returnable part will be determined by the Managing Authority before the competition is announced.
Maximum funding period		Over 60 months
Interest rate		Set up by the Managing Authority in consultation with the Intermediate Body, considering the assumptions outlined above
Remarks		<p>The maximum amount of support for the project under Measure 5.1. was established in accordance with the provisions of the "Detailed Description of Priority Axes of the Regional Operational Program of the Lublin Voivodeship for 2014-2020". When assessing the information contained in the ex-ante analysis, consideration should be given to raising the maximum amount to at least PLN 1 million.</p> <p>The project implementation limits and restrictions indicated in the "Detailed Description of Priority Axes ..." appropriate for a given measure should also be taken into account.</p> <p>Considering the fact that the projects implemented within both activities bring benefits from the moment they are put into use, the debt part of the instrument - the loan, will be returned in fixed installments, determined on the basis of the amount granted, the duration of the financing and the interest rate adopted. A grace period equal to the duration of the investment may be set.</p>












Source: own elaboration.

Table 5. Instrument II – micro enterprises – assumptions

Measure		Description
Investment Priority and Measure		4a - Measure 4.2. Renewable energy production in enterprises
		4b - Measure 5.1. Improving the energy efficiency of enterprises
Goal		The purpose of Measure 4.2. is the implementation of tasks contributing to the fulfillment of the obligations arising from the so-called the European Union's energy and climate package and the Europe 2020 Strategy. The action is aimed at creating a competitive renewable energy market , which is to become one of the elements of the region's sustainable development and to meet the growing energy needs of the local economy . The supported activities are to ensure the diversification of energy supplies and increase the energy security of the region, using its natural conditions and potentials, in accordance with the voivodeship program for renewable energy support, implementing the assumptions of the Energy Security and Environment Strategy.
		The purpose of Measure 5.1. is to achieve high energy efficiency of enterprises through the implementation of multidirectional and comprehensive tasks in various areas, i.e. heating, ventilation, cooling, hot water preparation and lighting of rooms; as well as the wider use of energy from renewable and unconventional sources. Investments serve to meet the demand for heat or for heat and electricity in enterprises. The goal is to create a production system in supported enterprises, taking into account the principles of sustainable use of resources, and improving energy efficiency will affect a more efficient production system, and consequently increase economic competitiveness. Identification of a set of measures to increase energy efficiency in a given enterprise is made on the basis of an energy audit.
Financial instrument type		loan + subsidy
Final recipient		micro enterprises
Maximum amount of unit support		PLN 250,000
Proportion of instrument components		Loan - from 33% to 67% of the project value
		Subsidy - from 33% to 67% of the project value
		The loan and the grant together can cover up to 100% of the project value . The proportions of the returnable and non-returnable part will be determined by the Managing Authority before the competition is announced.
Maximum funding period		Over 60 months
Interest rate		Set up by the Managing Authority in consultation with the Intermediate Body, considering the assumptions outlined above.
Remarks		<p>The project implementation limits and restrictions indicated in the "Detailed Description of Priority Axes ..." appropriate for a given measure should also be taken into account.</p> <p>Considering the fact that the projects implemented within both activities bring benefits from the moment they are put into use, the debt part of the instrument - the loan, will be returned in fixed installments, determined on the basis of the amount granted, the duration of the financing and the interest rate adopted. A grace period equal to the duration of the investment may be set.</p>

Source: own elaboration.

Table 6. Instrument III – micro enterprises – assumptions

Measure		Description
Investment Priority and Measure		4a - Measure 4.2. Renewable energy production in enterprises
		4b- Measure 5.1. Improving the energy efficiency of enterprises
Goal		The purpose of Measure 4.2. is the implementation of tasks contributing to the fulfillment of the obligations arising from the so-called the European Union's energy and climate package and the Europe 2020 Strategy. The action is aimed at creating a competitive renewable energy market , which is to become one of the elements of the region's sustainable development and to meet the growing energy needs of the local economy . The supported activities are to ensure the diversification of energy supplies and increase the energy security of the region, using its natural conditions and potentials, in accordance with the voivodeship program for renewable energy support, implementing the assumptions of the Energy Security and Environment Strategy.
		The purpose of Measure 5.1. is to achieve high energy efficiency of enterprises through the implementation of multidirectional and comprehensive tasks in various areas, i.e. heating, ventilation, cooling, hot water preparation and lighting of rooms; as well as the wider use of energy from renewable and unconventional sources. Investments serve to meet the demand for heat or for heat and electricity in enterprises. The goal is to create a production system in supported enterprises, taking into account the principles of sustainable use of resources, and improving energy efficiency will affect a more efficient production system, and consequently increase economic competitiveness. Identification of a set of measures to increase energy efficiency in a given enterprise is made on the basis of an energy audit.
Financial instrument type		loan + subsidy + guarantee
Final recipient		micro enterprises
Maximum amount of unit support		PLN 250,000
Proportion of instrument components		Loan - from 33% to 67% of the project value
		Subsidy - from 33% to 67% of the project value
		The loan and the grant together can cover up to 100% of the project value. The proportions of the returnable and non-returnable part will be determined by the Managing Authority before the competition is announced.
		Guarantee from 50% to 100% of the value of the debt part of the instrument.
Maximum funding period		Over 60 months
Interest rate		Set up by the Managing Authority in consultation with the Intermediate Body, considering the assumptions outlined above.
Remarks		The project implementation limits and restrictions indicated in the "Detailed Description of Priority Axes ..." appropriate for a given measure should also be taken into account. Considering the fact that the projects implemented within both activities bring benefits from the moment they are put into use, the debt part of the instrument - the loan, will be returned in fixed installments, determined on the basis of the amount granted, the duration of the financing and the interest rate adopted. A grace period equal to the duration of the investment may be set.

Source: own elaboration.

7.3. Defining the financial instrument's governance structure

Financial instruments can be offered to final recipients based on two models of management structure:

1. Directly, in which the Managing Authority is responsible for the independent distribution of financial instruments to final recipients – this solution is excluded by the Act on the principles of implementing programs in the field of cohesion policy financed in the 2014–2020 financial perspective⁴⁵.
2. Indirectly – through the involvement of an intermediate body, which, pursuant to Regulation 1303/2013, may be the EIB, an international financial institution, a financial institution established in a member state, or a public or private law entity.

It should be noted that in the latter case two solutions are possible. The first is the involvement of an institution selected in a competition or tender, or the involvement of an existing or newly created institution by investing in it. Such an institution is then responsible for implementing and servicing the financial instrument. The second possibility of an indirect management model is the use of a fund of funds, i.e. an institution that manages the funds allocated to financial instruments, and then selects intermediate bodies responsible for providing instruments to beneficiaries.

Comparison of the direct and indirect solution properties is pointless in the considered case – due to the fact that national law does not allow the application of the latter. However, it is necessary to analyze the characteristics of both direct solutions – that is, the solution establishing an intermediate institution, granting the instrument to final recipients, and assuming the use of a fund of funds – as an institution coordinating the work of many financial intermediaries. Their comparison leads to the following conclusions:

1. the fund of funds has the ability to respond more flexibly to changing demand, by introducing new intermediaries – which is not expected in these activities,
2. a solution establishing a fund of funds may generate additional costs, both of an economic and non-economic nature, such as an extensive coordination process, more competitions or more complex reporting – due to the fact that there will be many intermediary institutions in the system, they will also be arranged in a hierarchical structure,
3. the fund of funds enables the servicing of activities of a multifaceted, complex nature – thanks to the possibility of involving various specialized second-level intermediate institutions,
4. the use of a fund of funds is a more time-consuming and organizationally complex solution because it requires more competition procedures (selection of a fund of funds and intermediaries), as well as requires more extensive cooperation and reporting arrangements,

⁴⁵ Act of 11/07/2014 on the principles of implementing programs in the field of cohesion policy financed in the financial perspective 2014–2020, Journal of Laws 2014 item 1146.

5. the choice of one intermediate body gives the managing authority greater control over the functioning of the financial instrument.

Taking into account the presented assessment, in both actions, it is recommended to use a simpler solution – the first option, i.e. the involvement of an intermediary institution responsible for implementing the financial instrument and delivering it to final recipients. Both discussed models have a similar set of advantages, while there are no arguments for using the fund of funds in the analyzed situation. In addition, the following premises provide for one intermediate body:

1. The Managing Authority has experience in cooperation with this type of institution – the Lublin Agency for Entrepreneurship Support.
2. In each of the activities, a relatively narrow scope of projects is envisaged, therefore it is not justified to select many intermediary institutions specializing in various activities, which would be possible using the fund of funds.
3. The fund of funds is a solution potentially generating higher costs – due to the conditions indicated earlier.
4. As part of both measures, support is provided for a relatively small number of beneficiaries (in total, in accordance with the target value for 2023–330 entities).

In addition, it is permissible for one institution to be involved in servicing both activities due to the fact that:

- Such a solution will be more rational economically as well as organizationally – from the perspective of cooperation and coordination between the Managing Authority and the Intermediate Body.
- Both activities are very similar in nature, objectives and scope of implemented projects, therefore no institutions with a separate specialization plane are needed.

The intermediate body should be selected in accordance with applicable norms and regulations of national and Community law, taking into account the criteria:

- experience in the implementation of financial instruments;
- possessed knowledge necessary to evaluate and evaluate applications for projects achieving the objectives of both supported activities;
- ensuring the human resources potential necessary for timely and substantive correct implementation of tender and competition processes, monitoring and reporting processes as well as appeal proceedings.

The contract concluded with the intermediary institution, in addition to the regulations conditioning the operation rules and the instrument's operation, as well as the intermediary institution's remuneration, should include:

1. solutions in the monitoring and reporting area, consistent with the assumptions adopted later in the study;
2. decisions regarding the re-use of funds allocated to support, in accordance with art. 43, 44 and 45 of Regulation 1303/2013.

8. SPECIFICATION OF EXPECTED RESULTS CONSISTENT WITH THE RELEVANT PROGRAMME

8.1. Establishing and quantifying the financial instrument's expected performance

The basic and most important criterion defining the expected results of using the considered financial instruments is the scope and scale of the contribution to the achievement of the objectives set for a given measure, expressed in the set of indicators defined for that measure and the expected values of their implementation. If the financial instrument is the only form of financing the considered action, it should be assumed that the results of this measure are also the results of using the financial instrument.

The indicators relevant for the subsequent priority axes and the activities undertaken within them were defined in the Regional Operational Program of the Lubelskie Voivodeship for 2014–2020⁴⁶, and developed in the “Detailed Description of Priority Axes of the Regional Operational Program of the Lubelskie Voivodeship 2014–2020”⁴⁷. Output indicators for Measure 4.2. indicated in the detailed description are⁴⁸:

1. Number of RES electricity generation units built.
2. Number of rebuilt electricity generation units from RES.
3. Number of RES heat generation units built.
4. Number of rebuilt thermal energy generation units from RES.
5. Number of heat and electricity generation units from RES built-in cogeneration.
6. Number of rebuilt heat and electricity generation units from renewable energy as part of cogeneration.
7. Additional capacity to generate electricity in high-efficiency cogeneration.
8. Additional capacity to generate thermal energy under high-efficiency cogeneration.
9. Number of enterprises receiving support (CI1).
10. Number of installations constructed for the production of biocomponents.
11. Number of biofuel installations built.
12. Length of newly built power grids for renewable energy sources.
13. Length of modernized electricity networks for renewable energy sources.

⁴⁶ Regional Operational Program of the Lubelskie Voivodeship for the years 2014–2020, adopted by Decision of the European Commission C (2015) 887 of 12/02/2015.

⁴⁷ Detailed description of the Priority Axes of the Regional Operational Program of the Lubelskie Voivodeship for the years 2014–2020, Annex 2 to Resolution XCII/1914/2019 of the Lubelskie Voivodeship Management Board of 19/11/2019, Lublin 2019.

⁴⁸ And also listed in KPIS LIST TO MONITOR THE PA2 ADDRESSED TO INDUSTRY, internal document in the FIRECE project, 2019 and KPIS LIST TO MONITOR THE PA1 ADDRESSED TO PUBLIC AUTHORITIES, internal document in the FIRECE project, 2019.

However, taking into account the adopted reporting principles⁴⁹ and data on the scale of a given priority implementation, the following indicators can be cited⁵⁰:

1. Productive investments: number of enterprises receiving support (CO01);
2. Renewable energy: the additional capacity to generate energy from renewable sources (CO30);
3. Reduction of greenhouse gas emissions: estimated annual decrease in greenhouse gas emissions (CO34);
4. Number of renewable energy generation units built.

Analyzing the presented report, it can be seen that the implementation of the action and the entire priority axis is proceeding correctly. Based on the beneficiaries' forecasts, it can be assumed that the majority of indicators in 2018 should exceed the target values for 2023. Actual states are clearly lower, however, they show strong growth dynamics, which can be seen referring to the level of these indicators in 2016 and 2017. Therefore, it should be assumed that there is no need to introduce additional indicators monitoring the functioning of the financial instrument, and the results of its use should be consistent with the expected results of the action/priority.

For Measure 5.1. indicators in the product area, the indication in the description are:

- Number of enterprises receiving support (CI1).
- Number of enterprises that improved energy efficiency as a result of support.
- Number of energy-modernized buildings.
- Usable area of buildings subjected to thermomodernization.
- Number of RES electricity generation units built.
- Number of rebuilt electricity generation units from RES.
- Number of RES heat generation units built.
- Number of rebuilt thermal energy generation units from RES.
- Number of electricity and heat generation units built under cogeneration.
- Number of rebuilt electricity and heat generation units under cogeneration.
- Number of heat and electricity generation units from RES built in cogeneration.
- Number of rebuilt heat and electricity generation units from renewable energy as part of cogeneration.
- Additional capacity to generate electricity in high-efficiency cogeneration.
- Additional capacity to generate heat under high-efficiency cogeneration.

The report on program implementation⁵¹ shows the values of four indicators:

- Number of enterprises receiving support (CO01);

⁴⁹ Annual and final reports on implementation under the Investment for growth and jobs goal, Annex to Resolution No. 257/2019 of the Monitoring Committee of the Regional Operational Program of the Lubelskie Voivodeship for the years 2014–2020 of 18/06/2019. (not approved as at the date of this analysis).

⁵⁰ It should be stipulated that these indicators are common for investment priority 4a, covering Measures 4.1 and 4.2.

⁵¹ Annual and final reports on implementation under the Investment for growth and jobs goal, Annex to Resolution No. 257/2019 of the Monitoring Committee of the Regional Operational Program of the Lubelskie Voivodeship for the years 2014–2020 of 18/06/2019. (not approved as at the date of this analysis).

- Additional capacity to generate energy from renewable sources (CO30);
- Estimated annual decrease in greenhouse gas emissions (CO34);
- Amount of electricity saved.

Similarly as before, also for this Measure, the cumulative values up to 2018 determined according to the respondents' declarations are approaching or exceeding the target values for 2023. However, this time the actual values are significantly lower, although they still show clear dynamics, taking into account almost zero values in 2017. Nevertheless, the managing authority should consider, after settling the competition indicated in the report for the third quarter of 2019 and estimating the number of enterprises supported, planning further competitions for the action in such a way that the target value for 2023 is not reached later than in 2021. On account of the potential long-term investment duration, the effects achieved in the other indicators area may be postponed.

Concurrently, the ex-ante analysis carried out pointed to the fact that micro and small enterprises seem to be less represented among existing beneficiaries than medium-sized enterprises, although the number of micro and small enterprises that could potentially be supported, according to the authors' ex-ante estimation analysis, is clearly higher than medium-sized enterprises. This may be caused, on the one hand, by the lack of infrastructure that can be covered by these activities, and on the other hand by the existence of potential barriers to acquiring funds specific for micro and small enterprises, which the analysis unfortunately does not explain. Therefore, it is postulated to carry out an appropriate analysis and, if justified, to introduce and monitor an indicator expressing the proportion of enterprises covered by support.

8.2. Specification of how the financial instrument will contribute to the strategic objectives

Strategic goals that the considered financial instrument should contribute to can be considered at three levels: in view of the goals defined at the European Union level, strategic goals at the national level, and the goals set in the regional strategy. At the Community level, strategic goals are defined in the document 'Europe 2020: The European Union Strategy for Growth and Employment'⁵². Five goals have been identified:

1. achieving at least 75% employment rate;
2. investing 3% of GDP in research and development;
3. reducing greenhouse gas emissions, increasing the share of renewable energy and energy efficiency;

⁵² Communication from the Commission – Europe 2020: A strategy for smart, sustainable and inclusive growth (COM (2010) 2020 final of 03/03/2010).

4. reducing the percentage of early school leavers and increasing the number of university graduates;
5. reducing the number of people at poverty risk and social exclusion.

Strategic goals at the country level are defined in two documents, in the „*National Development Strategy 2020*”⁵³, and in the „*Long-Term National Development Strategy. Poland 2030. Third Wave of Modernity*”⁵⁴. The basic development goal for Poland, indicated in the first study, is „strengthening and using economic, social and institutional potentials ensuring faster and sustainable development of the country and improving the quality of life of the population”. Within it, three strategic areas were defined, with partial objectives in each of them. These are:

- Area I: An efficient and effective country in which the following strategic goals have been identified: transition from administration to development management, providing funds for development activities and strengthening the conditions conducive to the implementation of the citizen individual needs and activity.
- Area II: Competitive economy, including: strengthening macroeconomic stability, increasing economic efficiency, increasing economic innovation, human capital development, increasing the digital technologies use, energy security and the environment, and increasing transport efficiency.
- Area III: Social and territorial cohesion, including: social integration, ensuring access and specific standards of public services, as well as strengthening territorial balancing mechanisms of development and spatial integration for the development and full use of regional potentials.

At the regional level, strategic goals are defined in the „*Development Strategy for the Lubelskie Voivodeship for 2014–2020 (with a perspective up to 2030)*”⁵⁵. In this approach, four goals have been adopted⁵⁶:

1. Strengthening the region urbanization;
2. Agricultural restructuring and rural development;
3. Selectively increasing the region’s potential for knowledge, qualifications, technological advancement, entrepreneurship and innovation;
4. Functional, spatial, social and cultural region integration.

Measure 4.2. concerns the production of energy from renewable sources carried out by enterprises. As indicated in the ex-ante analysis, the measure is to contribute to

⁵³ National Development Strategy 2020, Ministry of Regional Development, Warsaw 2012.

⁵⁴ Resolution No. 16 of the Council of Ministers of 05/02/2013 regarding the adoption of the Long-Term National Development Strategy. Poland 2030. Third Wave of Modernity.

⁵⁵ Development Strategy of the Lubelskie Voivodeship for 2014–2020 (with a perspective until 2030), Marshal’s Office of the Lubelskie Voivodeship in Lublin, Lublin 2014.

⁵⁶ There is no doubt that the projects to be implemented by the financial instruments planned in both priorities fit almost directly into the strategic objectives defined at the first two levels, to a lesser extent – the objectives defined at the voivodeship level. Considering the funding gaps in both these priorities indicated in the ex-ante evaluation, it can be assumed that the financial instruments planned under these measures, potentially increasing the number of implemented projects, will serve to achieve some of the previously cited goals.

fulfilling the obligations arising from the so-called energy and climate package and is focused on creating a competitive renewable energy market, meeting the energy needs of the local economy and diversifying energy supplies. Measures defined in this way translate primarily into the implementation of Objective 3 of the Europe 2020 strategy, both in the perspective of an increase in the share of renewable energy and energy efficiency. At the same time, such projects broadly fit into Objective 6 of Area II of the „*National Development Strategy 2020*”, assuming increased diversification of fuel and energy supplies, improvement of the environment, as well as adaptation to climate change. Finally, referring to the strategy at the regional level, the financial instrument may to some extent contribute to the implementation of specific Objective 3.5, assuming support for small and medium-sized enterprises, and, potentially, Objective 2.5, concerning equipping rural areas with transport and communal infrastructure and energy.

Measure 5.1. on the other hand, concerns the improvement of enterprises' energy efficiency and, as the authors of the ex-ante evaluation indicate, serves two purposes. Firstly, achieving high energy efficiency, including the wider use of energy from renewable and unconventional sources, and secondly the creation of production systems that take into account the principles of sustainable development, thereby building efficiency and, as a consequence, translating into increased the economy's competitiveness. Similarly, as it was the case before, also projects in this area will first of all translate into the implementation of Objective 3 of the Europe 2020 strategy, as well as are part of Area II of the '*National Development Strategy 2020*', this time leading to the achievement of Objective 2, concerning the economic efficiency increase, and again, Objective 6, focused around the issues of energy security and the environment. The reference to the objectives of the regional strategy is analogous to that for Measure 4.2.

In addition, by their very essence, both financial instruments will also implement Objective 2 from Area II of the '*National Development Strategy 2020*', which is to increase the use of extra-budgetary resources. At the same time, both activities covered by the planned financial instruments are in line with the assumptions and objectives defined in the Strategy 'Energy Security and the Environment – a perspective by 2020'⁵⁷.

8.3. Monitoring and reporting

Constant monitoring of the financial instrument's performance on the target market is necessary both from the recipient's size and company's financial standing perspective. Supervision over the methods and correctness of its use, it also allows ongoing response to problems and emerging barriers in its use. The intangible and especially psychological dimension of the impact of the monitoring process on intermediate bodies and final recipients of the financial instrument cannot be overlooked. Properly planned and

⁵⁷ Resolution No. 58 of the Council of Ministers of 15/04/2014 regarding the adoption of the Energy Security and Environment Strategy – perspective up to 2020.

conducted monitoring results in the need to comply with rules and procedures, and also builds a sense of responsibility in the instrument's recipients as well as in its recipients for the achievement of the set goals.

When discussing the monitoring process's impact on the financial instrument's implementation and delivery process, one should also pay attention to its negative aspects. Poorly designed or excessive monitoring will discourage potential recipients, create or deepen fears of using instruments, and also lead to a sense of uncertainty, thus building a significant barrier to entry. In addition, too extensive monitoring, due to its labor intensity, causes costs, both financial, time and psychological, both among final recipients, at possible intermediary institutions (data generation and reporting), but also at the managing institution (data aggregation, development of studies, etc.). These costs will secondarily discourage the use of financial instruments.

Depending on the strategy adopted for implementing the financial instrument, two categories of entities should be monitored:

- intermediate bodies (if provided),
- target recipient.

Monitoring however, should be based both on internal data, i.e. those that are in the possession or possible to be developed by the Managing Authority, and external data – obtained from the mentioned entities, as well as from publicly available sources. The monitoring process itself should provide knowledge at least regarding⁵⁸:

- the number of instruments granted and their value;
- the number of applications accepted and the number of applications rejected, together with the reasons for any failure to grant the instrument;
- structure of the objectives for which support was provided;
- the structure of the set of entities which were supported and the structure of the set of entities that were denied support, considered from their size criterion, legal form, industry and activity nature;
- scope of assumed effects and the degree of their achievement during and at the end of the project, as well as profitability and return on investment;
- the degree of instrument use by entities during the project implementation, together with an assessment of the barriers observed in the instrument use⁵⁹.

In addition, it will be good practice to collect information to the extent that the ex-ante evaluation can be updated as well as to develop such evaluation in the future. The Managing Authority, when defining the scope of data obtained in the monitoring

⁵⁸ In particular, the following information about the final aid beneficiaries should be collected: contact details for the customer and the person responsible for the project, the size of the enterprise, its length and industry, industry and technological classification of the supported RES or EE project.

⁵⁹ It is necessary to collect data on cooperation with other entrepreneurs in the implementation of RES or EE projects as well as information on the actual (and not only the minimum) amount of own contribution of the final recipient. You should also monitor the costs of the promotion. Referring to the sureties granted, one should also collect basic information about them (amount, duration, percentage of risk coverage) and information on financial institutions for which they are granted.

and reporting process on the financial instruments implementation should also take into account the „Model for the submission of reports on the implementation of financial instruments” in accordance with Commission Implementing Regulation No. 821/2014⁶⁰, as well as to estimate indicators in accordance with the Guidelines for monitoring the physical progress of the implementation of operational programs for 2014–2020⁶¹. Prior to implementing the financial instrument, the Managing Authority should develop reporting procedures to be implemented by entities of both levels, i.e. agents and final recipients of the instruments. Obligation to implement them should be included in the contract for the financial instrument. Reporting procedures should be defined:

- frequency of submitting reports, however periods more than half a year are not recommended;
- scope of required data and information – provided that the reporting process is not unduly labor intensive;
- services or positions in the managing authority responsible for coordinating the reporting process and receiving its results.

Concurrently, the managing authority should also develop internal monitoring procedures that guarantee in particular:

- continuity of the monitoring process of the financial instruments’ use by its recipients and the conditions for implementing this process;
- minimizing burdens and building positive relations with the recipients of the financial instrument and possible intermediaries;
- providing an ad hoc control mechanism and response in the event of fraud or using the instrument in a manner inconsistent with the contract;
- defining services or positions responsible for collecting, aggregating, as well as processing data and information obtained in the monitoring process, as well as generating relevant reports.

Both procedural groups should be periodically evaluated in order to assess their effectiveness, the reasonableness of the solutions applied, as well as assess whether monitoring conducted costs do not exceed the detected frauds and irregularities value.

⁶⁰ Commission Implementing Regulation (EU) No 821/2014 of 28/07/2014 laying down rules for the application of Regulation (EU) No 1303/2013 of the European Parliament and of the Council as regards detailed regulations regarding the transfer and management of program contributions, and reporting on the implementation of instruments financial characteristics, technical characteristics of information and communication activities in relation to operations and the data recording and storage system.

⁶¹ Guidelines for monitoring the progress of physical implementation of operational programs for 2014–2020, Ministry of Investment and Development, Warsaw 2018.

9. PROVISIONS FOR THE UPDATE AND REVIEW OF THE EX-ANTE ASSESSMENT METHODOLOGY

The process of developing ex-ante evaluation is based, among others, on data from current market research, customer groups and economic conditions. Similarly to these data, the assessment itself may become outdated, or not take into account the reception, changes or additional problems arising from the design of the instruments adopted and the effects of their use. Therefore, Regulation 1303/2013, defining the constituent elements of the ex-ante evaluation, indicates that it should contain „provisions allowing review and updating, as necessary, of ex-ante evaluation when implementing any financial instrument whose implementation was based on such an assessment, when, during the implementation phase, the managing authority considers that the ex-ante assessment may no longer properly reflect the market conditions existing at the time of implementation „(Title IV, Article 37, point 2 (g))⁶². It should be noted that the Regulation rationalizes the premises for the updating process, explicitly indicating that the review and updating of the ex-ante assessment are to be carried out as needed, i.e. it does not have to have a fixed frequency and time horizon, while the decision to carry it out is left to the Managing Authority discretion. Despite this, the importance of updating the assessment should not be marginalized – in order to optimize the construction and use of the instrument, it should be based on the best possible market and economic data. The authors of „Ex-ante evaluation of financial instruments in RPO WL 2014–2020” indicate that the assessment should be updated at least once every two years. This frequency is justified and is also proposed by the authors of many similar studies⁶³. It should be noted that some reports also indicate the need for a shorter interval between inspections – they suggest taking this type of action even every six months⁶⁴. Despite this, it is advisable to accept a two-year interval between subsequent planned updates – due to the fact that financial instruments do not bring immediate effects.

“*Ex-ante evaluation of financial instruments in RPO WL 2014–2020*” in the update section specifies that the subject of the review should, first of all, be the most important areas discussed in the diagnostic part, and secondly, other perspectives of the conducted analysis, other issues that during the implementation of the instruments they prove to be important or whose analysis will be expected by the European Commission. In particular, according to the adopted provisions, the update should include:

⁶² Regulation (EU) No. 1303/2013 of the European Parliament and of the Council of 17/12/2013 establishing 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 (Journal of Laws of the European Union L. of 2013 No. 347, p. 320, as amended)

⁶³ Report, *Ex-ante evaluation of financial instruments implemented under the Regional Operational Program of the Łódzkie Voivodeship for 2014–2020*, Warsaw 2014.

⁶⁴ Final report from the evaluation study, *Ex-ante evaluation of financial instruments under the Regional Operational Program of the Śląskie Voivodeship for the years 2014–2020*, Kutno, December 2014.

- analysis of financing demand, carried out using publicly available data, as well as using the AFN model, based on financial data from reports of companies applying for support;
- the status of financial instrument implementation, including changes in financing interest levels, spending levels to date, and identification of barriers to financial instrument effective implementation.

In addition, it is recommended that the update of the ex-ante assessment take into account:

- assessment of the potential receipt of financial instruments in target groups, along with proposals for formal or organizational solutions aimed at simplifying the use of a specific instrument;
- assessment of the cooperation prospects and quality between the Managing Authority, possible intermediaries and the financial instrument's recipient, conducted from the perspective of each mentioned entity, together with a diagnosis of potential barriers to this cooperation;
- the reasons for failures in applying for the option of using a given financial instrument and the opinions of target recipients in this respect;
- gap analysis in the offer of financial instruments;
- conclusions and recommendations resulting from the analysis of the implementation process and the very use of financial instruments.

Within the detailed parameters requiring monitoring, and resulting in the need for a possible update of the assessment in the „*Ex-ante evaluation of financial instruments in ROP LV 2014–2020*” indicates:

- changes in the growth rate of small and medium enterprises,
- level of investment within SMEs and percentage of enterprises affected by difficulties in accessing credit,
- fluctuations in the enterprise's economic and financial situation,
- growth rate of sales revenues in enterprises.

As signals suggesting the need for an unscheduled review and update of the ex-ante assessment, the following can be identified:

- occurrence of significant changes in the economic environment,
- changes in strategic goals defined at the regional or state level,
- a change in the state's fiscal and tax policy, in particular changes in applicable tax rates,
- observed problems with the absorption of funds allocated to subsequent financial instruments.

Concurrently, before reviewing the assessment, the methodological solutions adopted should also be reviewed, in particular as regards the number of samples and the proportion of entities constituting their fractions. The assessment update itself should be carried out by the relevant departments of the Managing Authority in cooperation with an external contractor and should be based on both quantitative and qualitative data, including data collected during the implementation of subsequent instruments.

10. EX-ANTE ASSESSMENT COMPLETENESS CHECKLIST

Regulation 1303/2013⁶⁵ by introducing the requirement to develop an ex-ante evaluation for support from financial instruments, first defines two basic conditions that this evaluation should meet:

1. demonstrate the unreliability of market mechanisms or a sub-optimal level of investment,
2. specify the estimated level and demand for public investment, including the types of possible financial instruments to be supported.

However, according to the regulation cited above, a complete assessment should be considered to include an assessment that includes:

- analysis of market failure mechanisms, non-optimal investment level and investment needs in relevant areas;
- assessment of the supported financial instruments' added value, their coherence with other public interventions forms;
- assessment of possible consequences for State aid and measures to minimize market distortions;
- estimates of additional resources that could potentially be accumulated under the financial instrument and, if required, an assessment of the demand for preferential remuneration, or a description of the mechanisms used to determine the demand for such remuneration;
- a review of experience gained from using similar instruments and ex-ante evaluations carried out in the past, including how these experiences will be used;
- proposed investment strategy, including analysis of implementation options, financial products and final recipients;
- a specification of the instrument's expected results application and of how the financial instrument under consideration will be translated into the achievement of the objectives defined within the priority and relevant indicators;
- provisions for a possible review or update of the ex-ante evaluation, when implementing the financial instrument, in a situation in which the managing authority considers that this evaluation no longer properly reflects market conditions.

The substantive evaluation of the report „*Ex-ante evaluation of financial instruments in ROP WL 2014–2020*” leads to the conclusion that both conditions presented at the beginning were met. The fulfillment of these criteria is largely due to the extensive analysis of the financial gap presented, in which the scale of funding mismatch in the

⁶⁵ Regulation (EU) No. 1303/2013 of the European Parliament and of the Council of 17/12/2013 establishing 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 (Journal of Laws of the European Union L. of 2013 No. 347, p. 320, as amended).

group of small and medium-sized enterprises, based on existing data (CSO) and the AFN model, was diagnosed. It was further expanded to include a deeper, qualitative search for the reasons for the mismatch, carried out using data from a survey and interviews in enterprises affected by the gap. This gap directly expresses the level of demand for financing, thus proving the non-optimal level of investment.

Considering the completeness requirements of the ex-ante evaluation as defined in the Regulation, the evaluation should be considered partially complete. As noted earlier, it proves the existence of underinvestment, also estimating the demand for external financing in various customer groups. At the same time, the ex-ante evaluation indicates, among others, the reasons for not obtaining external funds, the reasons for resigning from applying for this type of financing, also links the scale of the observed financing gap with the characteristics of the enterprise.

Within the scope of individual investment priorities, the objectives pursued by a given action are presented, target recipient groups and problems observed when financing projects from within it are characterized. The types of possible financial instruments were discussed in the perspective of past experience, where you can also find reasons for their unreliability, in addition, for each investment priority the rationale for using individual instruments was discussed, as well as the most justified instrument was indicated.

The presented investment strategies often boil down to indicating the most reasonable instrument, some of the activities are designed rather briefly – some required 30 pages, some were closed in five – as is the case in, inter alia, Measure 1.1. (*Regional Research Infrastructure*) and Measures 1.2. and 1.3. (*Targeted research, R&D infrastructure in enterprises*). This is unjustified considering even strategic Goal 3 (“selective increase of knowledge, qualifications, technological advancement, entrepreneurship and innovation of the region”) indicated in the development strategy of the Lubelskie Voivodeship⁶⁶.

In the analyzes performed, the expected results of using a given instrument, as required by Regulation 1303, are often not indicated, as well as a lack of forecast as to how it will translate into achieving the objectives of the given priority, as well as indicators enabling an appropriate estimate. The analyzes, however, contain a section devoted to the principles of its updating. In addition, taking into account the criterion of substantive verifiability of ex-ante evaluation, it should contain an overview of the adopted assumptions and research and analytical methods.

⁶⁶ Development Strategy of the Lubelskie Voivodeship for 2014–2020 (with a perspective until 2030), Marshal's Office of the Lubelskie Voivodeship in Lublin, Lublin 2014.

11. FEASIBILITY STUDY

11.1. Executive summary

The need to develop the presented innovative financial instrument resulted from two premises. Firstly, it was associated with the decision to use a repayable instrument that allows more projects and beneficiaries to be supported by the return of capital to the managing authority, and also provides greater than non-returnable instruments multiplier effects⁶⁷. Concurrently, the situation in which financed projects are, in principle, profitable, which, as demonstrated by ex-ante analysis, takes place in the case of Measures 4.2. and 5.1. is a significant premise for using this type of instrument. On the other hand, however, according to the knowledge provided by this analysis, there is a significant risk of not being sufficiently interested in the loan program in both of these activities, and entrepreneurs declare interest in subsidy support to some extent. Therefore, it is proposed to create a financial instrument combined with a grant that would be used for investment purposes (mixed instrument).

The aim of all planned financial instruments is to close the funding gap in the areas of Measure 4.2 and Measure 5.1. The purpose of the first, according to the "Detailed description of the priority axes of ROP WL"⁶⁸ is the implementation of tasks contributing to the fulfillment of obligations arising from the so-called the European Union energy and climate package and the Europe 2020 Strategy. The measure aims to create a competitive market for renewable energy, which will become one of the region's sustainable development elements and will meet the local economy's growing energy needs. The supported activities are to ensure the diversification of energy supplies and increase the energy security of the region, using its natural conditions and potentials, in accordance with the voivodeship program for renewable energy support, implementing the assumptions of the Energy Security and Environment Strategy.

The purpose of Measure 5.1. is, however, achieving high energy efficiency of enterprises through the implementation of multidirectional and comprehensive tasks in various fields, i.e. heating, ventilation, cooling, hot water preparation and lighting of rooms; as well as the wider use of energy from renewable and unconventional sources. Investments serve to meet the demand for heat or for heat and electricity in enterprises. The goal is to create a production system in supported enterprises, taking into account the sustainable resource use principles, and improving energy efficiency will affect a more efficient production system and, as a consequence, increase the competitiveness of the economy.

⁶⁷ Konopiłko Ł., *Returnable support instruments in the new EU financial perspective*, Scientific Papers of the PWSZ in Płock. Economic Sciences 2 (2015), pp. 173–181.

⁶⁸ Detailed description of the Priority Axes of the Regional Operational Program of the Lubelskie Voivodeship for the years 2014–2020, Lublin, 19/11/2019.

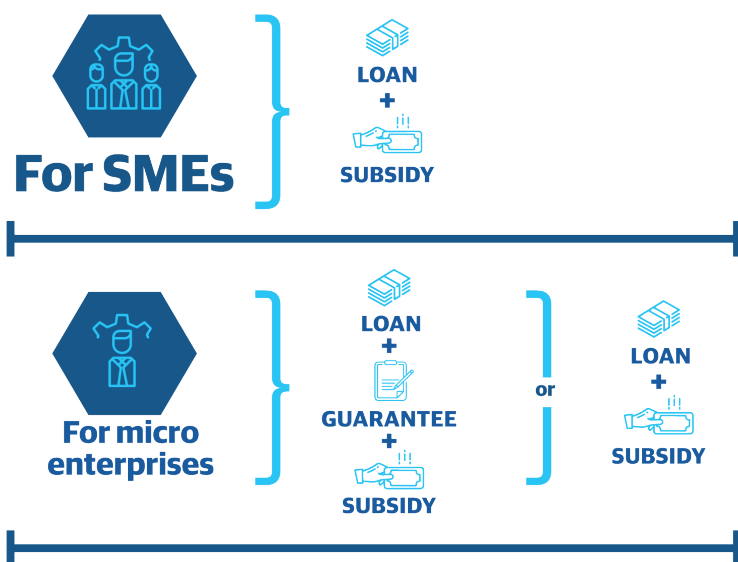
Within Measure 4.2. (*Renewable energy production in enterprises*) and Measure 5.1. (*Improving the energy efficiency of enterprises*), therefore, two mixed forms of support are being designed:

- loan combined with subsidy,
- loan combined with subsidy and guarantee.

These instruments have two target groups. First of all, they are micro-enterprises, and secondly a group of small and medium-sized enterprises, in both cases operating in the area covered by ROP LV. Due to the diverse scope of needs, but also different expectations regarding the level of support, three alternative financial instruments have been developed:

- for small and medium-sized enterprises – instrument I: loan + subsidy,
- for micro-enterprises – instrument II: loan + subsidy and instrument III: loan + subsidy + guarantee.

Joint (mixed) forms of support **proposed** under Measure 4.2.



Graphic 7 – Joint forms of support – Measure 4.2

Source: own elaboration

All three instruments will be used separately for Measure 4.2. and for Measure 5.1, the differences will concern the maximum value of support, in accordance with the assumptions contained in the “Detailed Description of Priority Axes of ROP LV”, and,

possibly, the Intermediate Body – if the Managing Authority deems it appropriate to involve different Intermediate Bodies for each of the Measures.

11.2. Technological considerations

According to the adopted assumptions, it is planned to use three mixed financial instruments within each Measure, combining the repayable part with the subsidy and, possibly, with the guarantee. Within both measures, it is planned to cover two separate groups of entities. These will be micro, small and medium enterprises. All instruments will be granted on the basis of competition proceedings, conducted in accordance with the law, assumptions contained in the presented Investment Strategy, and other conditions defined by the Managing Authority.

Instrument I: loan combined with a subsidy

The instrument is targeted at small and medium-sized enterprises – the isolation of these groups is, among others, set by specific expectations regarding the financing conditions and volume, expressed in an ex-ante analysis, such as a difference, in relation to micro-enterprises in the scale of implemented projects.

The design of the instrument takes into account the combination of two components – a returnable part, implemented in the form of a loan and a non-returnable part – subsidies. In Measure 4.2. maximum unit support of up to PLN 1.5 million is envisaged, within the scope of activity 5.1. – up to PLN 500,000.

The ratio of the returnable part (loan) to the non-returnable part (subsidy) will be determined by the Managing Authority before the competition is announced, based on the knowledge and experience as well as market information, including from the Intermediate Body – therefore loan will be constant for all beneficiaries of the given competition. It is assumed that the loan part will cover from 50% to 75% of the project value, while the subsidy part – the remaining part. The loan and grant will therefore cover up to 100% of the project value.

Due to the fact that the implemented projects from both measures are profitable in the long term – according to the ex-ante analysis, the payback period usually exceeds five years, a maximum funding period exceeding 60 months is allowed. It will be determined for the purposes of subsequent competitions by the Intermediate Body in consultation with the Managing Authority. The interest rate on the repayable part will be set in such a way that the revenues from this cover the costs of operating the instrument, and at the same time it should be preferential enough to fill the gap in access to financing provided by commercial institutions. Considering the fact that the projects implemented within both activities bring benefits from the moment they are put into use, the debt part of the instrument – the loan, will be returned in fixed installments, determined on the basis of the amount granted, the duration of financing and the interest rate adopted. A grace period equal to the duration of the investment may be set.

Instrument II: loan combined with a subsidy, Instrument III: loan combined with a subsidy and guarantee

The second and third financial instruments are targeted at micro-enterprises – they have been distinguished due to a different range of expectations in this category of entities, but also due to the smaller than in the case of small and medium enterprises, the scale of implemented projects, and thus smaller financing demand.

The construction of both instruments assumes the combination of a returnable (loan) and non-returnable (subsidy) component, while within instrument III these components will be additionally supplemented with a guarantee. Within both activities and both planned instruments, support with a maximum value of up to PLN 250,000 is planned.

The proportions of the returnable (loan) and non-returnable (subsidies) parts will be determined similarly as in the case of instrument I by the Managing Authority before the announcement of the competition, based on their knowledge and experience, as well as market information, including those from the Intermediate Body. Also in this case they will be permanent for all beneficiaries of a given competition. For both instruments under consideration, the loan part will cover from 33% to 67% of the project value, while the grant part will cover the remaining costs. The loan and subsidy will therefore cover up to 100% of the project value. Concurrently, in the case of instrument III, the part of the instrument will also be a guarantee of the debt part – a loan in the amount of 50% to 100% of its value.

This guarantee, according to the information resulting from the ex-ante analysis, may be of particular importance for the target group of the instrument, due to the often demonstrated inability to secure the repayment of the liability, or the possibility of securing only a small part of it – at least due to the short duration of operation market or disposing of small-scale assets relative to the size of the liability. Granting a guarantee should be preceded by an analysis of the beneficiary financial and market situation, this analysis can also be used to determine the scope of the guarantee, assuming that more favorable situations allow a larger scale of sureties.

For the same reasons as for instrument I, a maximum financing period exceeding 60 months is also allowed here. Will be determined for the purposes of subsequent competitions by the Intermediate Body in agreement with the Managing Authority, and the interest rate on the repayable part will be set in such a way that the revenues from this cover the costs of operating the instrument. At the same time, it should be preferential enough to fill the gap in access to financing provided by commercial institutions.

Similarly as it was indicated earlier, also in the case of instrument II and instrument III, the debt part – the loan, will be reimbursed in fixed installments, determined on the

basis of the amount granted, the time of financing and the interest rate adopted. A grace period equal to the duration of the investment may be set.

The allocation of funds between all instruments under a given measure remains the responsibility of the Managing Authority, with a larger scale of funds allocated under Instrument I (small and medium enterprises) being recommended, due to the larger scale and higher costs of projects implemented by these entities. The proposed breakdown is making available 65% of funds under Instrument I and 35% of funds under Instruments II and III. Instruments II and III, due to the same target group, can be distributed jointly from one budget, and the choice of the instrument itself should be left to the applicant's decision.

11.3. Existing marketplace: Examine the national markets of the IFI

Action in the field of improving energy efficiency under Measure 4.2. (*Renewable energy production in enterprises*) are characterized⁶⁹:

- long return on investment,
- uncertainty as to the real profitability of renewable energy projects (which is influenced, among others, by legal solutions that are not fully favorable to investors),
- risk that is difficult to estimate regarding the cost of energy production and the cost of selling energy or heat to the grid,
- in the case of municipalities, renewable energy projects are not treated as a priority, i.e. those that would justify borrowing,
- no incentive effect if there is no subsidy.

Action in the field of improving energy efficiency under Measures 5.1. (*Improving the energy efficiency of enterprises*). The Measure objective is to achieve enterprises high energy efficiency through implementation of multidirectional and comprehensive tasks in various fields, i.e. heating, ventilation, cooling, hot water preparation and room lighting; as well as wider use of energy from renewable and unconventional sources) characterized by:

- low profitability of projects (long payback period),
- strong dependence on market changes,
- difficulties related to the financial instrument implementation system requiring additional incentives created.

⁶⁹ In the case of the Lubelskie Voivodeship, the ROP axes in accordance with the main goal of the FIRECE project regarding SMEs are Priority Axis 4 Environmentally friendly energy (Measure 4.2. *Renewable energy production in enterprises*) and Priority Axis 5 Energy efficiency and low-emission economy (in particular Measure 5.1. *Improving the energy efficiency of enterprises*). In both Measures 4.2. and 5.1. ROP LV in the period 2014–2020 subsidy support was used. The goal of both Measures is the implementation of tasks contributing to the fulfillment of obligations arising from the so-called the European Union's energy and climate package and the Europe 2020 Strategy. Measures are focused on creating a competitive renewable energy market, which is to become one of the elements of sustainable development of the region and meet the growing energy needs of the local economy.

In the last five years, over 2/3 of enterprises needed to finance their operations in the Lubelskie Voivodeship. Most often they applied for credit (42%), leasing (36%), and/or subsidy (28%). The loan has been less important so far (12%), the capital contribution is marginal (used by only 3.4% of companies). Almost 1/3 of all enterprises (31%) when trying to obtain external support was limited to one source, 17% – to two, 13% – to three, and 4% – to at least four of the five listed in the survey. Therefore, diversification is significant, which indicates the need to maintain various forms of financial support in the next financial perspective⁷⁰.

The demand for external capital is mainly reported by medium (80%) and small (77%) enterprises. In the case of micro-enterprises, the interest in external financing sources is much weaker – about 56% of entities applied for these funds, including only 50% of the self-employed. The low percentage for micro-enterprises is largely due to their low propensity to undertake investment activities (often due to no guarantee). Repayable measures (from loans, borrowings or leasing) more often than micro-enterprises were interested in small and medium-sized enterprises – at least one of these sources of financing was applied for by 71% of small and 70% of medium-sized entities against 48% of micro-enterprises. SMEs in the Lubelskie Voivodeship most often use leasing or credit. There are differences between entities of different sizes – in the case of micro-enterprises, all three sources are more or less the same popular, with credit (32%) first, subsidy (22%). In the case of small enterprises, credit and leasing are chosen by slightly more than half of the entities, while the subsidy reached 30%. Credit is the most popular external source of financing also in the case of medium-sized companies (60%), but in their case, the interest of applicants for leasing and subsidies is also high (44–49%). In the case of loans and subsidies, but also loans, the interest in them increases with the size of the company. 24% medium, 14% small and 7% micro-enterprises applied for the loan. The capital contribution to a similar extent was a potential source of financing for the activity of primarily medium-sized enterprises (10%), much less often – micro and small (2% each)⁷¹.

In the case of both the most popular types of commercial repayable funds, the demand for the capital of enterprises of various sizes is clear – half of the medium-sized enterprises applied for a loan worth at least PLN 1.7 million, while for small enterprises it was not less than PLN 384,000, and for micro – not less than PLN 100,000 1/4 of medium-sized companies applied for loans worth over PLN 4 million, another 8% – between PLN 2 and 4 million. In micro and small enterprises, the corresponding percentages are much lower – for both ranges, it was approx. 3% and 11%, respectively. These entities were also interested in high loans. As many as 27% of micro-enterprises

⁷⁰ Final report, *Ex-ante evaluation of financial instruments of ROP LV 2014–2020*, p. 6.

⁷¹ About 60% of entities applied for a loan, a loan of less than PLN 250,000, the corresponding percentage for leasing is 70%. In the case of subsidies, the most common amount was between PLN 100,000. and PLN 1 million (42% of entities). It is also worth noting that the amount exceeding the highest threshold studied – PLN 4 million, was requested by 8–9% of potential borrowers and borrowers, in the case of subsidies the corresponding percentage reached almost 7%, while among the lessees there was no such transaction.

applied for a loan amount not exceeding PLN 50,000, in the case of medium-sized enterprises there were no such situations. In the case of micro-enterprises, the largest polarization of entities took place: for credit and leasing in the range up to PLN 250,000 (respectively, 73% and as much as 90%). And for small businesses – for credit, it ranges from PLN 100,000 up to PLN 1 million (54%), while for leasing – between PLN 50,000 and 500,000 (77% of entities). The polarization of medium-sized companies is much smaller, but it should be emphasized that almost 70% of them applied for leasing in the amount of between PLN 100,000 and PLN 1 million and 40% – for a loan of PLN 100,000 – PLN 1 million⁷².

A „typical” entity affected by the funding gap is an enterprise starting its business, limiting it locally or regionally, with low profit as well as with low innovation and decreasing potential to incur liabilities. Against the background of these factors, even smaller are the size of employment, turnover, legal form, as well as the economic and financial situation measured by financial liquidity, sales profitability, level of debt. In the context of the requirements of the EU Directive on energy efficiency, energy audits for large enterprises have also become mandatory. Based on the results of desk research, it can be seen that in 2007–2012, almost 90% of the examined energy efficiency improvement projects implemented in enterprises did not have energy audits or energy efficiency audits carried out before and after the investment⁷³.

11.4. Distribution strategy

The distribution strategy is a set of assumptions and planned actions on how to reach final recipients, as well as the actions necessary to take to ensure that recipients can use the financial instrument. The first decision in this respect, conditioning the entire distribution system shape, is the management structure choice for the considered instrument. In principle, the Managing Authority may adopt two solutions in this respect: involve the intermediate body that will be responsible for the final distribution of the instrument to target recipients, or decide to use a fund of funds whose task will be to involve and coordinate the next level of intermediaries responsible for providing the instrument to the final recipient.

While both options are feasible, in the case under consideration it seems more rational to abandon a solution based on a fund of funds, while using one intermediary institution. This solution is organisationally simpler, generates lower costs, is

⁷² Most enterprises applied for credit in commercial banks (39%, out of which the offer of commercial banks seeking external support was selected by 62–67% of micro and medium entities against approx. 49% of small ones) or leasing in a leasing company other than the bank (14%, respectively 19% medium, 21% micro and 25% small companies that applied for external financing). The offer of cooperative banks was much less popular (12% – it was twice as often reached by small companies as micro and medium-sized enterprises) and other specialized entities, including loan funds and credit unions (indicated only by 4 and 1 company).

⁷³ NEPF report, *Analysis and assessment of the possibilities of integrating energy efficiency measures, including renewable energy sources, including municipal waste and sewage sludge*, PWC, 19/09/2013, p. 109.

more effective from the point of view of information flow efficiency and activity implementation time, and the fact that the projects implemented in each measure are similar in terms of problems translates into the lack of need to involve several specialised institutions. For the same reason, it is possible to consider the involvement of one intermediary institution to support projects implemented within both measures.

The selection of an intermediary institution should be carried out in accordance with applicable legal norms, as well as taking into account the recommendations and recommendations indicated in the ex-ante analysis, and in this study, among others in the part devoted to the investment strategy. Long-term cooperation is recommended – that is, the involvement of one Intermediate Body to handle subsequent competitions organized within a given activity – this will allow convenient access to experience related to project implementation, possible to use in formulating the terms of subsequent competitions, useful for reviewing and updating ex-ante assessments, more efficient management of funds available under the allocation, those released for debt repayment and guarantees.

The procedure for distributing the instrument to the final recipient will be based on organized competition procedures for the recruitment of projects subject to support using the financial instrument. The competition procedure will be conducted separately for both measures covered by the instruments, and also, within each activity, separately for both groups of target recipients. The instrument will be delivered based on the contract concluded by the target recipient and on the conditions defined by the Managing Authority in consultation with the Intermediate Body.

The last aspect of the distribution strategy that needs to be considered is the financial instrument's communication policy. In the first place, it should include timely notification of potential beneficiaries about planned competitions, while providing necessary information on the objectives of the competition, admissible projects, requirements, scope of support and profile of the target group. It is also good practice to provide access to templates for application documentation, or, after appropriate anonymization, to complete applications highly rated in previous competitions of a similar nature.

The financial instrument's communication policy, in particular in terms of informing about planned competitions, should go beyond the standard of the Intermediate Body or Managing Authority website – it should reach for channels enabling direct access to potential beneficiaries. It acquires special significance considering the often indicated in the ex-ante analysis gaps in the knowledge of potential beneficiaries regarding the possibilities and principles of obtaining financing for projects from various activities available under ROP LV.

11.5. Risk management

There is a need to separate between national and regional support in terms of starting a business and assistance to entrepreneurs. This is mainly due to the fact that almost 1/4 of the final recipients in previous financial instrument programs were newly established enterprises (start-ups)⁷⁴. It is difficult to talk about competition between the banking system and supported loan/guarantee funds. The first of them operate on a scale incomparable for the latter. Banks are interested in other target groups, primarily companies operating on the market for several years. They also offer much higher-value financing to entities with a stable revenue level⁷⁵.

Some risk is associated with competing guarantee funds co-financed from the ROP with the domestic offer (mainly BGK) and European Investment Bank programs. However, the offer is primarily addressed to the banking sector. The risk of competition between the ROP guarantee instrument and other instruments is reduced by changing the guarantee fund strategy and reorienting it to guarantees of other financial instruments. One of the financial intermediaries in the Lublin region carries out warranty activities with its own funds in the field of non-banking products. In his opinion, delegating the decision to grant credit outside local branches by commercial banks significantly hindered the guarantee funds from working with them. There is another reason for a gradual reorientation of funds to guarantee outside bank liabilities of enterprises in the Lubelskie Voivodeship. In addition, the small allocation for sureties, not exceeding the scale of existing support, and the uncertainty regarding the continuation of the national *de minimis* guarantee program indicate that the risk of using the guarantee capital at the assumed level remains low⁷⁶.

The most important problems regarding the financing of projects in the RES and EE area are related to the uncertainty as to the applicable legal regulations and planned changes⁷⁷. The uncertainty about the real profitability of renewable energy projects is quite high. The decrease in the profitability of these projects is affected by uncertainty (risk) as to the cost of energy production (fuel cost), the cost of selling electricity or heat to the grid. Another risk (discussed later in the report) is related to the provisions the Renewable Energy Sources Act⁷⁸. Uncertainty is confirmed by the results of quantitative research, which shows that entities implementing RES investments have difficulties in estimating the amount of revenues that they can obtain thanks to such an investment.

The implementation of a financial instrument as a mixed instrument raises some risks. The most serious risk is the breach of the ban on double financing of the same expenses. The subsidy received could be used to repay the loan on an ongoing basis.

⁷⁴ Final report *Ex-ante evaluation of financial instruments of ROP LV 2014–2020*, p. 156.

⁷⁵ *Ibidem*

⁷⁶ *Ibidem*, p. 156–157.

⁷⁷ *Ibidem*, p. 170.

⁷⁸ 1) *Ibidem*, p. 170; 2) Report *Ex-ante evaluation of financial instruments of the Regional Operational Program of the Świętokrzyskie Voivodeship for the years 2014–2020*, WYG PSDB Sp. z o.o.

Therefore, it should be required that the funds obtained from it were spent within a specified (short) period on the renewable energy and/or EE investments envisaged in the business plan. This also excludes, in principle, subsidy financing of non-investment expenditure, including in particular working capital. It is also not to be expected that a novice entrepreneur will obtain funds to finance the required own contribution. Refunding even a small part of investment outlays will require bridge financing. In the absence of creditworthiness, he will be forced to use very expensive financing for para-bank institutions. This will significantly reduce the attractiveness of the subsidy incentive. At the same time, there will be a risk of using the loan to finance the own contribution. For this purpose, we recommend establishing an advance payment of 100% co-financing. At the same time, capital expenditure financed from it should be implemented within a time period less than 3 months from the advance payment receipt date. This is to minimize the significant risk of double financing in investment projects financed by the mixed instrument. However, there is still some risk of violation of the ban on double financing, due to the requirement to finance a minimum, 5% own contribution by the beneficiary, hence it is recommended to closely cooperate with partner institutions in recording expenses of the person who received support⁷⁹.

Depending on the MA's decision, the mixed instrument may be implemented by two independent entities. In the case of MA editing, these entities should cooperate closely together, including recording the supported project participant's expenses. Cooperation may not be conducive to the fact that each entity may have separate interests. Separate instrument implementation between the two entities will in turn impede the assessment of accountability for support outcomes. In the event that such cooperation would not proceed properly, the MA will be obliged to intervene directly. Therefore, the need to establish a support coordinator or at least coordination rules for a mixed instrument may be considered. This would be used to exchange information first. However, the need for coordination is an additional administrative burden for the MA in the support program.

⁷⁹ *Ibidem*, s. 232.

11.6. Schedule and timeline: timeframe of the implementation period

The implementation of the instrument will require the following measures:

1. Formulating assumptions and detailed rules and framework for cooperation with the Intermediate Body, as well as defining the requirements for the Intermediate Body.
2. Settlement of the competition procedure and selection of the Intermediate Body together with a possible appeal process.
3. Evaluation of resource range availability for each activity.
4. Formulation of the rules for the first competitions within both activities and the allocation of funds between the instruments.
5. Conducting competitions and selecting projects covered by the instrument.
6. After repayment 25% of the funds allocated in the debt part of the financial instrument (18–24 months of financing), an analysis of the instrument's effectiveness and the adequacy of the allocation proportion adopted for the instruments and their division into returnable and non-returnable part, followed by:
7. Formulation based on accumulated knowledge and experience regarding the second competition rules within both activities, conducting the second competition and selection of supported projects.

In order to maximize the availability of the financial instrument to potential recipients, it is recommended to regularly launch subsequent competitions, as the funds covered by the debt part of the instrument are returned and the funds reserved for the guarantee part are released. As a threshold, it is proposed to accept a refund and/or release of 25% of the funds foreseen for the debt and guarantee part, subject to the above. The proposed schedule, taking into account the following stages, is presented in Table 7.

Concurrently, planning the implementation time frame should take into account the deadlines for review and possible updating of ex-ante evaluation adopted by the Managing Authority.

11.7. Findings and recommendations

Table 8. Findings and recommendations

No.	Conclusion from the analysis	Recommendation	The effect of implementing the recommendation	How to implement the recommendation	Recipient of the recommendation
1.	Financial instruments properly address the financial gap and can be used as mixed forms of support under Measure 4.2.	For Measure 4.2. (<i>Renewable energy production in enterprises</i>) joint forms of support are proposed: <ul style="list-style-type: none"> • For SMEs – loan and subsidy • For micro enterprises – loan + subsidy + guarantee or loan + subsidy 	Inducing the incentive effect, increasing the chances of using the allocation.	Introduction of relevant entries into the DDPA ROP LV	MA ROP LV
2.	Financial instruments properly address the financial gap and are suitable for use in OZE and EE projects as mixed forms of support under Measure 5.1.	For Measure 5.1. (<i>Improving the energy efficiency of enterprises</i>) joint forms of support are proposed: <ul style="list-style-type: none"> • For SMEs – loan and subsidy • For micro enterprises – loan + subsidy + guarantee or loan + subsidy 	Inducing the incentive effect, increasing the chances of using the allocation.	Introduction of relevant entries into the DDPA ROP LV	MA ROP LV
Types of projects in which financial instruments should be used in a given Investment Priority					
3.	The conducted analyzes indicate that it is justified to use mixed financial instruments in Measure 4.2. and 5.1.	Implementation under Measure 4.2. and 5.1. RPO using mixed financial instruments.	Increasing the efficiency of using public funds (repayable funds) and providing additional (mixed) financial instruments	Introduction of relevant entries into the DDPA ROP LV	MA ROP LV
Private capital involvement					
4.	Private capital may be involved to supplement public funds	Partial allocation for implementation under Measures 4.2 and 5.1 of the ROP	Achieving a high multiplier effect and increasing the stream of funds	Introduction of relevant entries into the DDPA ROP LV	MA ROP LV
The conditions under which financial instruments should be offered					
5.	Target group: SMEs affected by the financial gap, with a particular focus on micro-enterprises	The possibility of creating SMEs focused on achieving the objectives of renewable energy and EE	Creation of SME oriented and implementation of RES and EE activities.	Introduction of relevant entries into the DDPA ROP LV	MA ROP LV

No.	Conclusion from the analysis	Recommendation	The effect of implementing the recommendation	How to implement the recommendation	Recipient of the recommendation
6.	<u>Cost of loan</u> : the capital cost determines the use of a particular financing form	Keeping the total cost of the loan/guarantee for the entrepreneur as low as possible.	Creating an incentive effect for reaching for repayable financial instruments, which will result in limiting the funding gap for entities of the SME sector.	Introduction of relevant entries into the DDPA ROP LV	MA ROP LV
7.	<u>Collateral</u> : Collateral is one of the main funding barriers. Many types of projects lack material security (in particular for micro-enterprises).	Facilitating access to warranty funds services. Limitation of material security.	Increasing debt financing capacity. Alleviating the effects of an important barrier to access to capital. Creating conditions for project development even in the absence of the originator's own resources. Improved allocation of funds in the region and increased access to financing sources for the smallest enterprises.	Introduction of relevant entries into the DDPA ROP LV	MA ROP LV
8.	<u>Repayment period/grace period</u> : extension of the repayment period is stabilization for the entrepreneur. The grace period improves the liquidity of seasonal and new enterprises. Repayment and grace period – investment incentive.	It is not justified to invest funds for a period longer than 7 – 8 years. If not, the broker should be allowed to extend this period in exceptional cases until a nominal return on investment is obtained (however, not longer than 10 years).	Minimizing the risk of losses being deepened by failed projects and quickly releasing invested funds for reinvestment.	Introduction of relevant entries into the DDPA ROP LV	MA ROP LV

Source: own elaboration.

Table 8. Findings and recommendations

No.	Conclusion from the analysis	Recommendation	The effect of implementing the recommendation	How to implement the recommendation	Recipient of the recommendation
9.	<u>Subsidy component</u> : there is a risk of insufficient interest in the loan program in Measure 4.2. and 5.1. It is proposed to create a financial instrument with a subsidy that would be used for investment purposes (mixed instrument).	The grant would be paid out 100% in advance, together with the loan. It is proposed to link the amount of the grant with the amount of loan support granted – the amount of the grant should not exceed 50% of the loan amount. The maximum amount of non-returnable support does not exceed 6 times the average remuneration for work in the national economy in force on the day of the grant.	Improving the capital position of supported enterprises. Increasing investment outlays for people starting a business. Making loan support more attractive.	Introduction of relevant entries into the DDPA ROP LV. Introduction of relevant provisions in the regulations for the selection of a partner institution managing the grant component.	MA ROP LV
Implementation Model					

Source: own elaboration.

Table 8. Findings and recommendations

No.	Conclusion from the analysis	Recommendation	The effect of implementing the recommendation	How to implement the recommendation	Recipient of the recommendation
10.	<p>At the current stage of implementation of ROP WL 2014–2020, it is not possible to establish a new intermediary institution, which would be necessary if both the financial instrument and the subsidy grant were to be provided by the same entity.</p> <p>The issue of availability (the physical distance separating borrowers from intermediaries) is important and in the absence of network bank structures in the program, it is necessary to ensure an even geographical distribution of financial intermediaries in the region.</p> <p>The problem of access to external sources of financing for people starting a business is a permanent problem. It should not be expected that after 2020 it will occur.</p>	<p>Priority for promoting the new loan facility. Extending the scope of guarantee to loans and other non-bank financial instruments. Focus on better geographical penetration in the north of the Lublin region. Increasing the value of contracts due to reduced cost limits.</p> <p>A mixed instrument may require the establishment of two institutions that would implement a support program. If the MA made such a decision, the financial intermediary would grant loans and the other institution operating in the partnership would grant grants. Close cooperation between the two institutions is necessary at the same time, therefore the mixed instrument should be implemented as part of a partnership project.</p>	<p>Facilitating the financing of projects in preference areas and increasing the availability of financial instruments in the Lublin region, which was characterized by lower activity of loan and guarantee funds.</p> <p>A professional and experienced financial intermediary will ensure the security of public funds and their effective spending (selection of recipients of loans guaranteeing the creation of a sustainable enterprise and repayment of the loan).</p> <p>Reusing the financial contribution of the Managing Authority will contribute to further stimulation of business activities in the Lubelskie Voivodeship. Allocating funds to the best intermediaries will increase the efficiency of their spending.</p> <p>Creating a system of cooperation between the financial intermediary and the partner institution in Measure 4.2. and 5.1. Creating additional coordination rules or structures in these Measures.</p>	<p>Introduction of relevant entries into the DDPA ROP LV</p>	MA ROP LV

Source: own elaboration.

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Appendix

Questionnaire on market failures analysis

<i>Structural macro-economic failures</i>	<i>Applicable</i>		<i>Remarks</i>
	<i>Yes</i>	<i>No</i>	
<p>Negative externalities A cost that is suffered by a third party as a result of an economic transaction: it's known as an externality because the actors that take part in the economic transaction do not internalise all of the costs. An example can be represented by the costs sustained collectively for the consequences on the environment and on health due to the use of fossil sources, which are reflected on the level of taxation of the companies and do not allow a correct economic evaluation of the investment.</p>	V		
<p>Lack of adequate regulatory framework</p> <ul style="list-style-type: none"> Adjustment to financial regulatory frameworks to better support capital market innovation, ensure that risk assessment and related capital requirements for long-term energy efficiency investments correctly reflect their risks and develop market potential more innovative sources of financing for energy efficiency Lack of regulatory certainty and stability. 	V		The high risk in the case of the Polish market.
Lack of up-to-date macroeconomic information for 2018 – a real assessment of the Polish market is a bit of working out.	V		
High sectoral entry barriers depending on model forces (Porter's model).	V		
<i>Demand-side failures</i>			The problem is investment/project with a high degree of innovation related to the implementation/application of a new unknown or barely known solution (lack of adequate experience). So in addition to financial support, „professional“ support would be useful and helpful. Depending on the market situation, we can include both supply and demand.
<p>Asymmetric and imperfect information Imperfect information is problematic when the project sponsor does not understand the potential for energy savings or resource generation. Moreover, even if the project sponsor understands the energy efficiency potential, it is often faced with competing priorities or the need for action on the core business that drains the available financial resources. MAs should identify the amount of marketing and project development activity that is currently being supported in the market and consult with public and private sector stakeholders as to whether this is sufficient.</p>	V		For entrepreneurs, this risk can be minimized by high energy costs. The entrepreneur will be determined to seek a solution that reduces costs. It is necessary to educate in the field of understanding the subject of energy efficiency in the long-term aspect.

Questionnaire on market failures analysis

<p>Small size of projects and high transaction costs</p> <p>One of the main problems for funds looking at investments in energy efficiency and renewable sources is the often reduced size of projects and the relatively high transaction costs needed to place them on the market: overcoming this failure requires standardized contracts or the possibility of merging multiple projects with different risk profiles and dimensions to create an attractive financial perspective. This approach may require significant financing of technical assistance. Furthermore, high transaction costs can be caused by long administrative procedures required for project approval.</p>	V	High barrier for the Lubelskie Voivodeship (the advantage of SME's).
<p>Scarcity of investment-ready projects</p> <ul style="list-style-type: none"> • Even if there is access to finance, there is difficulty in preparing bankable projects, due to lack of information or inadequate technical preparation. • The benefits are in the form of savings rather than revenues, making it harder to secure cash flows. • Savings can be difficult to measure due to measurement difficulties and the influence of variables such as weather and changes in usage patterns. • There is little standardisation in the development and documentation of projects. • Projects are often part of larger projects with other purposes e.g. building modernisation. • Energy efficiency assets are usually embedded into buildings and processes which presents difficulties for asset finance models. • The split incentive in commercial property whereby the tenant benefits from energy savings whereas the landlord makes the investment. 	V	
<p>The company's banking credibility problems</p> <p>The financial leverage ratio, understood as debt to equity ratio, is considered too high.</p> <ul style="list-style-type: none"> • Standardization and automation of many processes has led to a reduction in employment (a problem for non-standard projects or a large number of them). 	V	
High entry barriers for SME's.	V	
Supply-side failures		
<p>A lack of access to appropriate finance/ high project risks</p> <ul style="list-style-type: none"> • Capital markets are not used to invest in energy efficiency and are unable to accurately assign the price of risk. Lack of finance, especially for SMEs and start-up. • Investments inefficiency are considered at a level of risks such as requiring high levels of interest rates or high level of subsidized financing. 	V	

Questionnaire on market failures analysis

<p>A lack of capacity or experience in the supply chain</p> <ul style="list-style-type: none"> Energy Service Companies (ESCOs) are very important in the market for, and implementation of, energy efficiency projects across the EU. ESCOs need a strong legal framework including public procurement framework, some fiscal incentives, technical and practical experience of using EPC, the capacity to arrange and manage financing and sufficiently developed project pipelines: these conditions are not found uniformly across Europe. Other issues are found further down the supply chain in terms of the contractors that undertake the retrofit works: many countries have a lack of skilled workers who know how to undertake the works required and this can be a real market failure 			
<p>High physical costs of entrepreneurs.</p>	V		
<p>High behavioral and psychological costs of entrepreneurs (additional effort, additional time commitment, another topic to monitor, etc.)</p>	V		
<p>Sub-optimal investment situations</p>			
<p>A project has a positive IRR (Internal Rate of Return) but is not attractive for private financing due to a variety of factors including:</p> <ul style="list-style-type: none"> high risk perception unfamiliar asset class long maturity or a lower IRR than deemed attractive <p>The grant element in an FI and the information an FI can provide can make these investments more attractive.</p>	V		
<p>There is a gap between the demand for investments in energy efficiency and the goals of the Regional Energy Plan</p> <p>Calculate the investment gap as the difference between the level of investment required to reach the target and the current level: use qualitative and quantitative analysis of project typologies, funding available and experience to identify the types of investments that could be appropriate for an FI; estimate the investment gap in the Programme priorities through calculating the difference between the amount invested to date and an estimation of the amount needed to meet identified objectives.</p>	V		

Questionnaire for analysing sub-optimal market situations with comments for the Lubelskie Voivodeship (Lubelskie Voivodeship PP8)

<i>Structural macro-economic failures</i>	<i>Applicable</i>		<i>Remarks</i>
	<i>Yes</i>	<i>No</i>	
<p>Negative externalities A cost that is suffered by a third party as a result of an economic transaction: it's known as an externality because the actors that take part in the economic transaction do not internalise all of the costs. An example can be represented by the costs sustained collectively for the consequences on the environment and on health due to the use of fossil sources, which are reflected on the level of taxation of the companies and do not allow a correct economic evaluation of the investment.</p>	V		
<p>Lack of adequate regulatory framework</p> <ul style="list-style-type: none"> Adjustment to financial regulatory frameworks to better support capital market innovation, ensure that risk assessment and related capital requirements for long-term energy efficiency investments correctly reflect their risks and develop market potential more innovative sources of financing for energy efficiency Lack of regulatory certainty and stability. 	V		The high risk in the case of the Polish market.
<p>Lack of up-to-date macroeconomic information for 2018 – a true assessment of the Polish market is somewhat correct.</p>	V		
<p>High sectoral entry barriers depending on model forces (Porter's model).</p>	V		
Demand-side failures			The problem is investment/project with a high degree of innovation related to the implementation/application of a new unknown or barely known solution (lack of adequate experience). So in addition to financial support, „professional“ support would be useful and helpful. Depending on the market situation, we can include both supply and demand.
<p>Asymmetric and imperfect information Imperfect information is problematic when the project sponsor does not understand the potential for energy savings or resource generation. Moreover, even if the project sponsor understands the energy efficiency potential, it is often faced with competing priorities or the need for action on the core business that drains the available financial resources. MAs should identify the amount of marketing and project development activity that is currently being supported in the market and consult with public and private sector stakeholders as to whether this is sufficient.</p>	V		For entrepreneurs, this risk can be minimized by high energy costs. The entrepreneur will be determined to seek a solution that reduces costs. It is necessary to educate in the field of understanding the subject of energy efficiency in the long-term aspect.

Questionnaire for analysing sub-optimal market situations with comments for the Lubelskie Voivodeship (Lubelskie Voivodeship PP8)

<p>Small size of projects and high transaction costs</p> <p>One of the main problems for funds looking at investments in energy efficiency and renewable sources is the often reduced size of projects and the relatively high transaction costs needed to place them on the market; overcoming this failure requires standardized contracts or the possibility of merging multiple projects with different risk profiles and dimensions to create an attractive financial perspective. This approach may require significant financing of technical assistance. Furthermore, high transaction costs can be caused by long administrative procedures required for project approval.</p>	V	High barrier for the Lubelskie Voivodeship (the advantage of SMEs).
<p>Scarcity of investment-ready projects</p> <ul style="list-style-type: none"> • Even if there is access to finance, there is difficulty in preparing bankable projects, due to lack of information or inadequate technical preparation. • The benefits are in the form of savings rather than revenues, making it harder to secure cash flows. • Savings can be hard to measure due to the difficulties of metering and the influence of variables such as weather and changes in usage patterns. • There is little standardisation in the development and documentation of projects. • Projects are often part of larger projects with other purposes e.g. building modernisation. • Energy efficiency assets are usually embedded into buildings and processes which presents difficulties for asset finance models. • The split incentive in commercial property whereby the tenant benefits from energy savings whereas the landlord makes the investment. 	V	
<p>The company's banking credibility problems</p> <ul style="list-style-type: none"> • The financial leverage ratio, understood as debt to equity ratio, is considered too high. • Standardization and automation of many processes has led to a reduction in employment (a problem for non-standard projects or a large number of them). 	V	
High entry barriers for SME's.	V	
Supply-side failures		
<p>A lack of access to appropriate finance/ high project risks</p> <ul style="list-style-type: none"> • Capital markets are not used to invest in energy efficiency and are unable to accurately assign the price of risk. Lack of finance, especially for SMEs and start-up. • Investments inefficiency are considered at a level of risks such as to require high levels of interest rates or high level of subsidized financing. 	V	

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The FIRECE project: Innovative Financial Instruments for Industry Low carbon Energy transition in Central Europe is a transnational cooperation project implemented by the Lublin Voivodeship Self-government from the European Regional Development Fund under the Interreg Central Europe 2014–2020 Program, Priority Axis 2: Cooperation in the field of low-emission strategies in CENTRAL EUROPE, Specific objective 2.2. Improving territorial energy strategies and policies that have an impact on mitigating the effects of climate change. FIRECE is a transnational cooperation project implemented under the Interreg Central Europe 2014–2020 Program (financed by the European Regional Development Fund) - Priority Axis 2: Cooperation in the field of low-emission strategies in CENTRAL EUROPE in the period 2017–2020. Ten partners from 7 member countries (Austria, Czech Republic, Croatia, Germany, Poland, Hungary, Italy) participate in the project. The project leader is the Venice Chamber of Commerce, Industry, Craft and Agriculture - it is the Lead Partner (PP1 Venice). The other partners are: PP2; PP6 – Network for energy and environmental technologies; Center for International Management and Knowledge-Based Economy (Germany), PP3 – Emilia Romagna Region (Italy), PP4 – Southern Regional Innovation Agency (Hungary), PP5 – Center for Research and Innovation (Austria), PP7 – Regional Development Agency (Poland), PP8 – Lublin Voivodeship (Poland), PP9 – Istrian Regional Energy Agency (Croatia), PP10 – A consulting company in the field of energy, environment and management (Czech Republic). The FIRECE project aims to contribute to targeted outcomes of regional energy plans through increased use of (innovative) financial instruments in the Central Europe region.

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