



ENERSELVES
Interreg Europe



ENERSELVES – Policy instruments for energy self-consumption in buildings

ENERSELVES 5th call. Learning Report

JOINT REPORT



Lessons learned report

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Lessons learned report

The ENERSELVES project aims to:

- Promote new policies or improve existing policies to support the integration of renewable energy into buildings for self-consumption financed by the Structural Funds and other EC instruments.
- Design policies to promote only those renewable energies for self-consumption technologies with greater benefits in each region.
- Define clear KPI (Key Performance Indicators) to identify the best investment by value.
- Transmit how European policies have an impact on society.
- Support the integration of RES in buildings.

ENERSELVES focus in the integration of RES for self-consumption, but not every RES is cost-effective for every region, so it needs an in depth analysis and a definition of clear KPIs to identify the best value-for-money investment.

Due to the necessity of optimizing the limited SFs, only by focusing in the RES that provided a higher impact on the Growth and Jobs the regions will be investing their funds in a proper manner.

ENERSELVES focuses on designing policies to promote only those RES for self-consumption technologies with higher benefits in each region.

ENERSELVES 5th call objective will be to address the COVID19 crisis as an opportunity to increase energy efficiency, integrating renewables and reducing emissions in buildings.

The Recovery Plan for Europe includes measures to repair the economic and social damage caused by the COVID-19 pandemic. A key aspect of this plan is to achieve a green and sustainable energy transition.

ENERSELVES will allow partners to share experiences to benefit from these funds in the most effective way, drawing a clear roadmap that will allow to implement new projects in the time these funds must be committed.

Lessons learned report

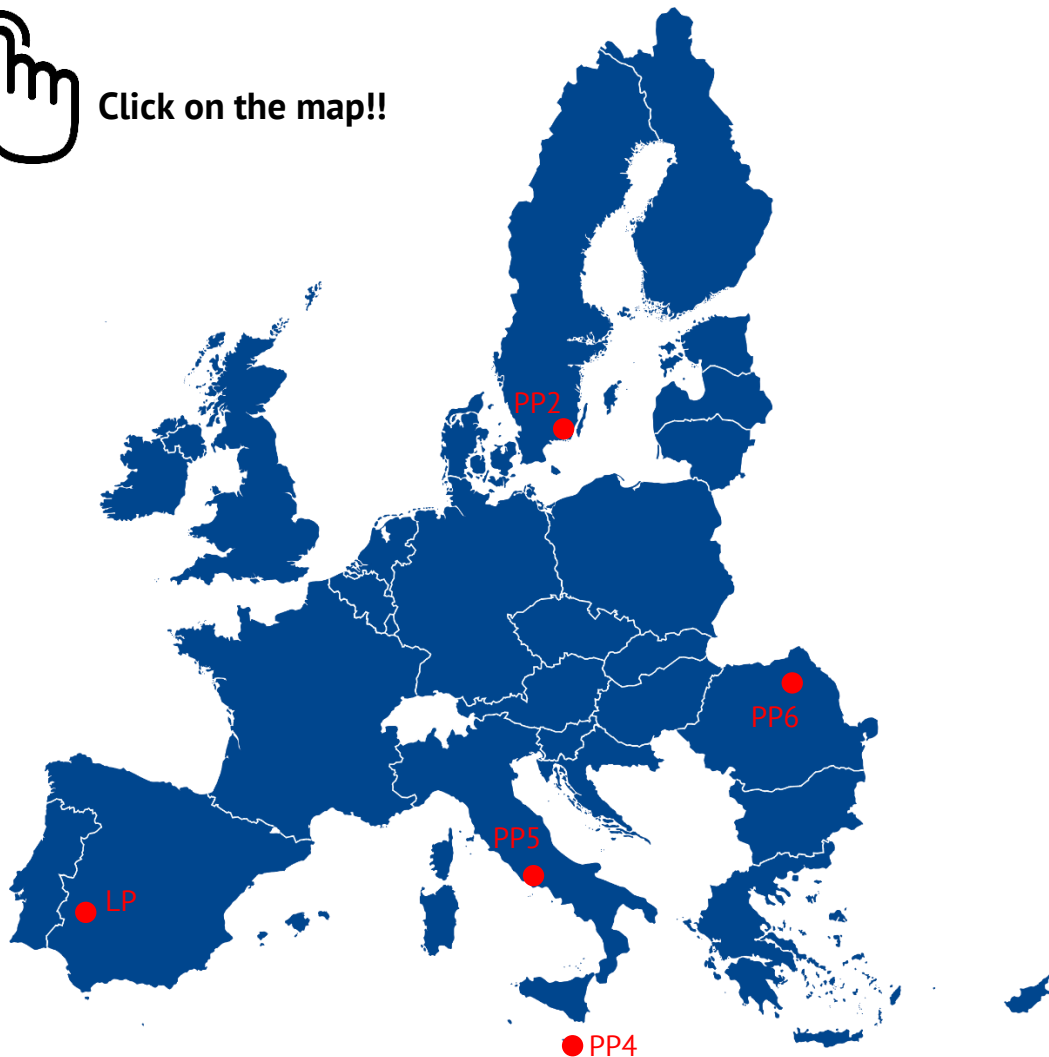
1. Policy instrument addressed

As one of the largest sources of energy consumption in Europe, buildings are considered a primary target for energy efficiency measures. ENERSELEVES project wants to change policies in order to increase energy efficiency, integrate renewables and reduce emissions in buildings.

To develop this task, Europe has launched the Recovery Plan which includes measures to repair the economic and social damage caused by COVID 19. Developing and implementing regional policies can be difficult, especially if you don't know what other regions are doing. Due to this reason, the ENERSELVES project wants to share its experience regarding policy instrument development.



Click on the map!!



Lessons learned report

Partner	Country	Policy instrument
LP_ Consortium Extremadura Energy Agency (AGENEX)	Spain (Extremadura region)	E4PAREX, Regional Strategy for Energy Efficiency improvements and integration of Renewables in public buildings of Extremadura's regional administration (2018-2030)
PP2_ Energy Agency for Southeast Sweden	Sweden (Southeast Sweden)	Climate and Energy Strategy for the Blekinge county (Klimat och energistrategi för Blekinge)
PP4_ Malta Intelligent Energy Management Agency, MIEMA	Malta	Eco Gozo Action Plan OP 2014-2020 Priority Axis 4: Shifting towards a low-carbon economy – Mitigation and Adaptation to Climate Change
PP5_ Lazio Region	Italy (Lazio)	Regional Law 38/1999 "Rules on the regional territorial government"
PP6_ North-East Regional Development Agency, NE RDA	Romania (North-East)	Regional Operational Programme (ROP) Romania 2021-2027 Priority 3. North-East - a sustainable, more environmentally friendly region.

Lessons learned report

LP_ Consortium Extremadura Energy Agency (AGENEX)

Describe in the application form:

“The objective is the implementation of RE projects in public buildings by an improved governance related to project bundling, shared self-consumption and the use of new financing mechanisms, as could be the involvement of private financing and the use of the recovery funds. The reg. government will use AGENEX as instrumental body to develop these tasks by in-house contracting.”

The first ENERSELVES project call, wanted to address the ROP ERDF 2014-2020 with the OP objective 4 → Low carbon economy which includes 3 specific objectives, 2 of them are related to the integration of RES in buildings. However, this Policy instrument had ended and the next ROP ERDF 2021-2027 is currently under development.

Furthermore, the ENERSELVES action plan from the previous call, had aimed to improve the public building stock thanks to the **E4PAREX strategy** (2018-2030), which main target is to identify and promote the refurbishment of public buildings within the regional administration toward a greener and circular economy. The target established are:

- Reduce 32% of the final energy consumption by 2030.
- Reduce 57% de greenhouse gas emissions by 2030.
 - o 29% will be thanks to energy efficiency measures.
 - o 28% will be thanks to renewable energy sources.
- By 2030 29% of the energy consumption will be aimed at RES.
- Train 2.000 specialists.
- Aware of 800.000 citizens, about energy consumption.
- Invest 229 M€ in refurbishing the public building stock with energy efficiency measures.
- Introduce individual monitoring systems within 100% of administrative buildings.
- Carry out 3 research and development projects to finally implement an action plan.

Concurrently with this strategy, the **“Recovery, transformation and Resilience Plan”** were launched at a national level, in order to rebuild the Spanish economy after the COVID 19 crisis.

This policy instrument will entail a significant volume of public and private investment, and it has 4 cross-cutting lines of action, one of them aimed to an ecological transition where line (III) is dedicated to *“A fair and inclusive energy transition”*.

Due to the COVID 19 situation, the way we understood buildings had change. Know millions of Europeans had used their homes as office, nurseries, shopping, and so on, creating a new demand on our buildings, needing a massive scale of renovation.

To cover this need, the regional government launched in January 2022 their One Stop Shop (OSS) [SICAREx](#).

Lessons learned report

The main target of this OSS is to advise regarding grants and funds recently launched thanks to the Next Generation Funds.

The assessment offered by the hand of AGENEX, within the OSS, would be split between types:

- Financial advice: it will help users to seek the best and more cost-efficient way to invest in self-consumption in buildings.
- Technical advice: assessing regarding the best solution in renewable technology and install power in buildings.

Lessons learned report

PP2_ Energy Agency for Southeast Sweden

Solar production accounted for approximately 0.4 percent of electricity use in Blekinge in 2018. This is a small but increasing share of total electricity use.

Installed power has increased sharply in Blekinge, from 2 MW in 2015 to 7.6 MW in 2018, which corresponds to approximately 7.4 GWh of electricity. In Karlskrona, a new solar park will be built in 2019 with a potential of 6 MW, which corresponds to an additional 6 GWh of electricity. The county has good conditions for solar energy, not least in the coastal areas due to the high solar radiation. There is a very suitable roof surface that is possible to use. The potential has been calculated at between 418 and 1158 GWh per year in two different scenarios (in 2030 and 2050 respectively). In order to take advantage of the county's potential and promote the development of solar energy in Blekinge, the county's actors need to be made aware of the great potential that exists.¹

The solar energy should account for about 5 percent of electricity use in Blekinge by 2030 at the latest, which corresponds to 110 MW installed power.

A new joint action program during 2020 and the impact of Covid-19

During 2020 a new joint action program was planned to be established with new measures. Because of the Covid-19 pandemic, the action program was postponed and is being produced during 2022.

The measures for the theme climate and energy follow the focus of the Climate and Energy Strategy for Blekinge, which has the overall goal of halving carbon dioxide emissions every four years from 2020.

In order to be able to select relevant measures for climate and energy work in the county, data has been obtained from the regional environmental objectives. Thereafter, Blekinge's conditions and possibility of adjustment have been considered. There are many important measures to take in climate work that do not fit into this action program, and the measures may be revised in future updates of the program as conditions change and new knowledge becomes available.

In accordance with the Climate and Energy Strategy for Blekinge from 2017-2020, the measures are updated regarding renewable energy during 2022 but are still been divided into the following focus areas: Energy efficiency, renewable energy, transport and to engage citizens. Our focus in Enerselves is renewable energy and the measure in the action program says: In order to meet the electrification of society and secure access to renewable and planned energy, investments are needed in large-scale energy production and energy storage.

¹ Energy and Climate strategy for Blekinge county, Blekinge county

Lessons learned report

The measures in the program are aimed at Blekinge's actors and residents. It is together that this cooperation can best reduce greenhouse gas emissions in the county and thus contribute to Sweden's development towards a fossil-independent welfare state.

Lessons learned report

PP4_ Malta Intelligent Energy Management Agency, MIEMA

The EcoGozo Policy is a regional sustainable development strategy that proposes a set of measures to steer the Island of Gozo in a more sustainable direction and transit towards a low carbon economy. The plan encompasses a wide range of energy related issues and proposes actions specifically aimed at improving energy efficiency in buildings and the exploitation of RES. During the first phase, Enerselves provided support to orient the policy instrument towards the implementation of cost-effective projects in relation to the integration of RES in buildings and maximising self-consumption through the application of lessons learnt from interregional cooperation.

In the last phase of the project MIEMA further supported the EcoGozo policy through capacity building activities aimed specifically to deal with the impact of COVID-19, with a focus on the new energy needs which arose due to the pandemic, within different types of buildings (public, commercial, residential), taking into consideration barriers and challenges that need to be addressed. Capitalisation and dissemination activities in relation to best practices related to innovative projects aimed to maximise energy self-consumption within buildings, or within energy communities, were carried out, involving different stakeholders in the region. MIEMA focused on bringing together the different stakeholders and provide support in relation to the implementation of different RES technologies and project funding with a focus on cost-effective solutions as well as innovative models to allow for collective-self consumption.

Lessons learned report

PP5_ Lazio Region

Regional Law 38/1999 "Rules on the regional territorial government"

The regional law prescribes the rules on the governance of the territory, aimed at regulating the protection, structures, transformations and uses of the territory itself and of the buildings that compose it.

This regional law promotes interventions to conserve or rebuild public and private buildings, meeting heritage requirements. Sustainability and energy criteria should be taken into account of course.

The aim of the project is to include the indications contained in "Guidelines for the energy efficiency of residential buildings in the Lazio Region" developed thanks to ENERSELVES project, within the next calls for proposals issued by the Region.

Another important goal is to disseminate the contents of the Guidelines to the local municipalities and cities.

Lessons learned report

PP6_ North-East Regional Development Agency, NE RDA

The development of the energy sector is part of Romania's development process. Growth means the use of non-polluting technology innovations in all subsectors energy system and maintaining Romania as an energy supplier state, a factor of stability energy in the southern European area; building new production capacity based on state-of-the-art clean technologies; the transition from solid fuels (coal, lignite, etc.) to natural gas and renewable energy sources; refurbishment and capacity upgrading to existing production facilities and their classification in environmental regulations, strengthening networks of energy transmission and distribution; encouraging decentralized energy production; encouraging the growth of domestic consumption in energy efficiency conditions; export. The national energy system will be better, strong, safer, and more stable and Romania will maintain its role as a security provider of energy in the region.

Production of electricity based on low carbon emission technologies, in which the transition from solid fossil fuels to natural gas, as a transition fuel, renewable sources of energy, and nuclear power are priority projects, respectively the digitization projects networks, storage, and hydrogen use energy efficiency measures will contribute at achieving the above-mentioned fundamental strategic objectives of national interest. The strategic objectives will be met simultaneously through a set of policies and measures that sums up priority actions and investments staggered in time.

Through Romania's Energy Strategy, are considered priority investments those investments needed throughout the energy system, leading to the achievement of fundamental objectives:

1. Investments in energy production with low carbon emissions by substitution of the use of coal with natural gas and renewable energy sources as well as the construction of cogeneration plants of high efficiency in cycle technology combined with the natural gas operation. Implementation of the Decarbonation Plan to Oltenia Energy Complex has a priority role in the transition from solid fossil fuels to low carbon emission technologies. Decarbonation measures for the production of electricity and heat are detailed in the Integrated National Plan for Energy and Climate Change.
2. Investing in increasing the potential of renewable energy production, taking into account both Romania's potential for wind and photovoltaic energy, as well as for that produced on wind farms offshore.
3. Increasing nuclear energy capacity by upgrading Unit 1, and completion of the project of Units 3 and 4 from Cernavoda Nuclear Power Plant. Nuclear energy, being a low-carbon energy source, has a significant share in the total national electricity production – approx. 18% and is a basic component of the energy mix in Romania. Romania's nuclear power plant is backed by resources and internal infrastructure covering the whole cycle opened by nuclear fuel; practically, Romania has a high degree of independence in nuclear energy production.
4. Investments in refurbishment and modernization of energy networks through the introduction of digitization and networking smart grids are essential measures to support

Lessons learned report

the sectoral integration process and energy transition. Digitization will contribute significantly to the safety of the energy system, intensifying the efforts and capacity of response in the event of malfunctions of the system. At the same time, risk management is needed with a maximum speed regarding cyber-attacks.

5. Investments in the realization and completion, as the case might be, of cross-border interconnections with neighbouring countries (EU Member States and Member States third parties), both for natural gas and for electricity supply.
6. Investing in storage capacity, taking into account the hydrogen potential and new gases in the sectoral integration process. Storage capacity will facilitate synergy between the various sectors of the energy system. Infrastructure modernization and optimization to take over new energy carriers, how would be hydrogen and renewable gases, is a priority in the energy transition, these are also supported by the European Commission's new hydrogen strategies and sectoral integration.

By making strategic investments necessary to achieve the objectives set by the strategy, it is intended to ensure visible participation of the horizontal industry from Romania (engineering, design, manufacture of equipment, materials, etc.) and the growth of the local component (places of work) with an impact on economic growth.

The main policy instruments in the current programming period, targeted by the purpose of the ENERSELVES project, are the following:

- Regional Operational Program, Axis 3;
- Operational Program for Sustainable Development;
- National Recovery and Resilience Program.

These 3 tools cannot be improved or influenced because:

- The Regional Operational Program is in the process of elaboration/completion and is currently in the process of evaluation at the specialized services of the European Commission, in the first formal version of the programming document.
- Operational Program for Sustainable Development - is already developed, folding on the objective of the ENERSELVES project. PODD aims to achieve national development objectives in the field of energy efficiency, environmental protection, and risk management and to reduce the gap between the Member States of the European Union and Romania on infrastructure in these areas, both quantitatively and qualitatively.
- National Recovery and Resilience Program - to be started.

Priority 3 within the Regional Operational Program (ROP) 2021-2027 implies North-East - A sustainable, more environmentally friendly region, Specific objective: Promoting energy efficiency measures and reducing greenhouse gas emissions.

Measures to increase the energy efficiency of residential buildings eligible for funding are as follows:

Lessons learned report

- Investments in residential buildings to increase energy efficiency, including structural consolidation measures, depending on the level of exposure and vulnerability to the identified risks.
- Investments in public buildings to ensure/increase energy efficiency, including structural consolidation measures, depending on the level of exposure and vulnerability to identified risks.

Mandatory actions in each project:

- improving the thermal insulation of the building envelope (eg exterior walls, windows, carpentry, upper floor, basement floor, etc.), trusses, and roofs, including measures to strengthen the building - mandatory for all energy efficiency projects;
- measures to consolidate buildings;
- creation, rehabilitation, modernization of ventilation and air conditioning systems (including passive cooling systems), replacement, as appropriate, of installations for the production and use of heating and domestic hot water, with small-scale renewable sources, in combination with an energy renovation package;
- implementation of intelligent energy management systems to improve energy efficiency and monitoring of energy consumption (purchase, installation, maintenance, and operation of intelligent systems for management and monitoring of any type of energy to ensure indoor comfort conditions);
- arrangement of roofs and green facades;
- any other activities that lead to the achievement of the specific objective (replacement/modernization of elevators, replacement of electrical circuits, the endowment of buildings with intelligent lighting systems, etc.).

The Operational Program for Sustainable Development will support, in addition, the energy efficiency of large enterprises and SMEs through solar and wind energy production projects exclusively for their consumption.

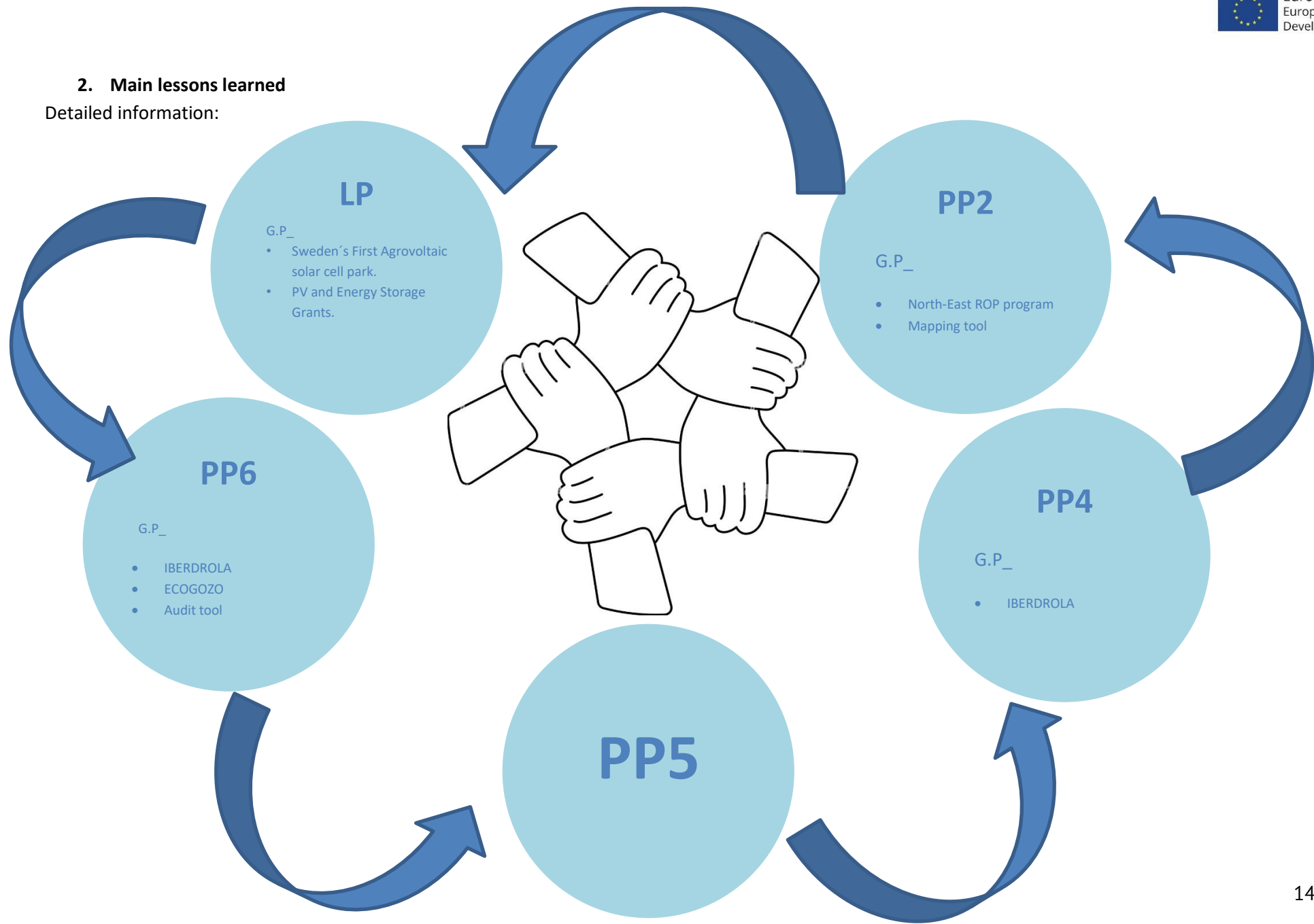
In addition, the post-2020 National Strategic Plan will provide support for investments in micro-enterprises in the rural non-agricultural sector, support for energy efficiency in investments at farms, and processing units, investments in SMEs in the agricultural and agri-food sector as part of the basic project, and the Operational Program for Fisheries and Maritime Affairs will support investments for the energy efficiency of SMEs in the fisheries sector in their modernization projects.

The National Recovery and Resilience Plan provides energy renovation interventions dedicated to multifamily residential buildings in communities exposed to the risk of poverty and social exclusion, moderate and deep energy efficiency with territorial allocation, and demonstration calling for integrated energy efficiency with consolidation. Energy efficiency in public buildings is provided a territorialized allocation for moderate and/or in-depth renovation in county seat municipalities and municipalities, as well as integrated demonstration projects consolidation with energy efficiency, complemented by energy efficiency interventions in public buildings for cities and municipalities.

Lessons learned report

2. Main lessons learned

Detailed information:



Lessons learned report

LP_ Consortium Extremadura Energy Agency (AGENEX)

- Opportunities identified thanks to **Good practice:**

GOOD PRACTICE	INSPIRATION	REPLICABILITY	COVID 19
<p>Partner: Energy Agency for Southeast Sweden</p> <p>GP's name: Sweden's First Agrovoltaic solar cell park.</p> <p>Information: Thanks to the cooperation of different entities, such as the Swedish energy agency + Mälardalen University + Swedish university of agricultural, the Ulf Andersson family has installed the first Agrovoltaic solar system on its farm.</p>	<p>Advantages: The difference between this Agrovoltaic park and others is the PV panels' position. This allows combining in the same territory the cropland and the electricity production. This would lead to high land production and a shorter payback period.</p> <p>Disadvantages: The production of vertical panels is not the same in Sweden as in other European regions positioned in the southern. This would mean a decrease in production due to the sun zenith.</p>	<p>Due to the agricultural sector is one of the main producers at Extremadura's economy. The possibility of combining electricity production + cropland would be an extra point for farmers. Furthermore, currently that we have a massive crisis with the prices of traditional fuels, such as natural gas, petrol, and so on.</p>	<p>The COVID 19 situation has entailed a decrease within the tourism sector. In Extremadura's region, this sector is the strongest one, meaning a downturn in the regional economy. As our Swedish partner expose in their GP, the Agrovoltaic installation has supposed an attraction to boost tourism. Combining PV + farms meant a win-win situation for tourism.</p>
<p>Partner: MIEMA</p> <p>GP's name: PV and Energy Storage Grants.</p> <p>Information: A new grant schemes to incentivise renewable energy for self-consumption</p>	<p>Advantages: The versatility of the different grants system. The support schemes are split between these categories: 1st- Investment in a new "standard" PV system.</p>	<p>Due to the high prices of energy and the wide range of sun hours in our region. With these factors in play, adding batteries to PV installations would be a win-win situation for all concerned</p>	<p>COVID 19 has supposed a change the way people understand life. This means more time at home and less in our workplace. On the one hand, this would mean a decrease in the public building energy demand, and on</p>

Lessons learned report

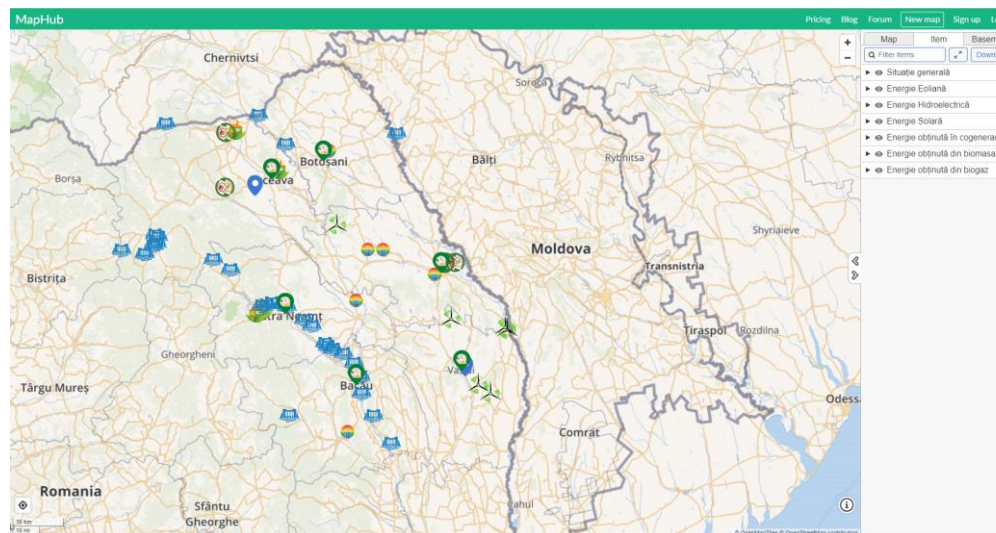
	<p>2nd – Investment in a new PV system with integrated battery storage. 3rd- Adding battery energy storage to PV systems which are already installed. Disadvantages: High prices of battery storage make users reject installing them.</p>		<p>the other hand an increase in the residential sector consumption. Promoting PV installation within the residential sector will suppose a decrease in the energy bill.</p>
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- Opportunities identified during the **interregional event**

PRESENTATION	INSPIRATION	REPLICABILITY	COVID 19
<p>Partner: North-East Regional Development Agency. GP's name: MapHub Information: Mapping the renewable energy production.</p>	<p>Advantages: Mapping the RE production will give a wide view of different points:</p> <ul style="list-style-type: none"> - Amount of RE. - The distribution within the region. - How much energy on the different types of production? Example: Biomass, biogas... - Future possibilities to install RE. 	<p>100% replicable within any European region. It gives an overview of the regional current situation, regarding RES.</p>	<p>-</p>

<https://maphub.net/BceAdr/harta-energiei-regenerabile>

Lessons learned report



- Opportunities identified during the **workshop**

- Speed up the energy renovation in public buildings
- High energy prices, reduce payback period
- Heritage buildings as an opportunity to be rehab.
- Amount of funds coinciding with the RECOVERY FUNDS
- Grants for electric vehicles → better infrastructure.
- Promote solar energy communities.



Lessons learned report

PP2_ Energy Agency for Southeast Sweden

- Opportunities identified thanks to **Good practice:**

GOOD PRACTICE	INSPIRATION
<p>Partner: MIEMA GP's name: Energy storage grant</p>	<p>A good example that could be replicated on our region Blekinge is an interesting example from MIEMA in Malta regarding energy storage grants. Energy storage has always been an interesting topic in our region since Blekinge has a focus on solar energy production.</p> <p>This method has many advantages such as reduction in energy losses since energy is being locally produced as well as locally used instead of being distributed over long distances. This method also facilitates for prosumers and gives them flexibility. Moreover, this service relieves the grid and reduces stress on the infrastructure which in turn helps to decrease electricity bills and helps increasing charging requirements for electric vehicles.</p> <p>Five grant schemes to incentivise renewable energy self-consumption have been launched in 2021 by the national energy regulator. Support schemes cater for:</p> <ol style="list-style-type: none"> 1. A new “standard” PV system 2. A PV system with a hybrid inverter 3. Investment in a new PV system with integrated battery storage 4. Adding a hybrid/battery inverter and battery storage 5. Adding battery energy storage to PV systems where were already installed.

- Opportunities identified during the **interregional event**

INTERREGIONAL EVENT	INSPIRATION
<p>Partner: North-East Regional Development Agency, NE RDA GP's name: North-East ROP program</p>	<p>This example presented focuses on the urban areas where different measures are taken into consideration such as preservation of nature, biodiversity and green infrastructure in urban areas, and reducing all forms of pollution. Related to this good example several main actions were presented to be implemented in the</p>

Lessons learned report

	<p>region such as expansion of green spaces in urban areas, increasing vegetation and biodiversity including increasing bicycle paths and intelligent lighting systems.</p> <p>Side actions that support interventions were also presented together with the main actions such as raising awareness among different target groups, exchanging experiences, developing technics and focusing on sustainability.</p> <p>This example is very inspiring to our region since we got to learn about the North-East ROP program and what similarities and differences it has comparing to Blekinge’s climate and energy strategy.</p> <p>Since climate change is one of the absolute biggest challenges of our time. As the rest of the world needs Blekinge to change to a more resource-efficient society free from emissions of fossil greenhouse gases. It is a challenge, at the same time for which it creates opportunities for a more sustainable and attractive Blekinge all dimensions of sustainable development - economic, social and ecological. To drive and strengthen the climate and energy work in the county, representatives have from business, public organizations and authorities gathered in the forum Climate cooperation Blekinge since 2011. The county board Blekinge has prepared a climate and energy strategy in dialogue with Klimatsamverkan Blekinge. The strategy forms a basis for the county's climate work and is aimed at the whole community. It contains clear goals that all actors can join to. The ambition is for the county's actors to come together under the same goal in order to do so way should create the power needed for a rapid transition to the modern, climate-smart society. To achieve the vision of a climate-neutral Blekinge requires commitment from everyone levels and cooperation in the county. Just like the North-East ROP program, the climate and energy strategy is one good tool for the continued development of strong regional climate work which gives results.</p>
<p>Partner: North-East Regional Development Agency. GP’s name: MapHub Information: Mapping the renewable energy production.</p>	<p>A mapping tool used to identify potential for solar energy production have also been presented. The mapping tool is largely like the Solar Map in Blekinge, a service at the County Administrative Board of Blekinge, where property owners can see how much electricity their roof can generate if you install solar cells. Such similarity may lead to a future partnership and knowledge exchange to improve both tools.</p> <p>This mapping application not only shows potential for solar energy production but also other technologies such as biomass, biogas, and cogeneration.</p>
<p>Partner: AGENEX GP’s name: IBERDROLA presentation</p>	<p>AGENEX and its stakeholder Iberdrola also talked about how they establish systems and legislation that allow the sharing and distribution of energy produced by adjacent buildings. This opened the doors for a future knowledge exchange between Sweden and Spain, as energy sharing in microgrids in Sweden is</p>

Lessons learned report

	<p>relatively new (the amendment to the regulation came into force on 1 January 2022). The technology will enable common photovoltaic systems to be used by all apartments and buildings in a tenant-owner association, or that a common energy storage can be shared by several buildings and nearby properties, which will probably lead to lower costs.</p>
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- Opportunities identified during the **workshop**

Many opportunities have been identified during the interregional workshop that can be implemented in our region such as the exchange of experiences regarding the technique of solar communities. Solar communities are a smart solution where it's not possible to install solar panels on a property due to shading or other conditions. By investing in solar communities, a central power plant's electricity can be shared to more than a single property. In this case, opportunity is given to citizens to invest in a renewable source and be a microproduct.

A smart solution to be combined with solar communities is energy storage technologies. These technologies are expanding rapidly in the marketplace, with a great potential to expand the benefits and uses of solar energy. Thanks to energy storage solar energy can be deployed during the day or night, making the electricity grid more flexible to changes in demand. Solar energy combined with battery storage improves grid resiliency by providing a backup energy source for homeowners and businesses when storms or other emergencies cause a power failure.

There is a very interesting model that has been shared during the workshop. This model is being spread in Europe and other countries in the world called One-stop-shop. OSS is a business model for energy renovation which aims to develop, implement and test new methods for energy renovations in houses.

About 80 percent of Swedish houses are over 30 years old and in need of renovation. This provides a unique opportunity to implement cost-effective measures that can drastically reduce primary energy use and greenhouse gas emissions. If there is a possibility to also install solar cells, the access to renewable energy is increased and the security of the energy supply increases for houses in rural areas.

A very good practice which also has been discussed during the workshop that can be spread to different European regions is the importance of energy audit in buildings in order to state the current state of the building and the energy saving opportunities.

Lessons learned report

PP4_ Malta Intelligent Energy Management Agency, MIEMA

- Opportunities identified during the **interregional event**:

INTERREGIONAL EVENT	INSPIRATION
<p>Partner: AGENEX GP's name: Solar smart communities (IBERDROLA)</p>	<p>The presented solar smart community model has been launched in Spain to address the increase in apartment blocks and allows for proximity self-consumption: energy can be consumed from a nearby PV installation, using the distribution network up to 500m away. The enabling of collective self-consumption allows several users to consume energy from the same solar installation. An example whereby a school was used for installation of roof-mounted PV systems which can serve nearby residential buildings has been presented which can be replicated in the Maltese islands.</p> <p>MIEMA embarked on a national campaign to promote a sustainable renewable energy community model based on the Spanish example presented and has organised meetings with key stakeholders in the region to discuss the implementation of such projects. The proposed model shall enable residents that cannot invest directly in the installation of a photovoltaic system to buy “renewable energy shares” from larger centralized PV systems installed in their vicinity, such as public schools and government administration buildings.</p> <p>A number of barriers which may limit the potential for the deployment of renewable energy communities in Malta have been identified during the consultations with the local stakeholders and mitigation strategies are currently being discussed with the relevant parties. On the positive side Malta’s regulatory framework supports self-consumption and ensures that there would be no legal or technical barriers to renewable self-consumption.</p>
<p>Partner: North-East Regional Development Agency. GP's name: Solar charging station</p>	<p>Participation in the Enerselves interregional event and final conference allowed for exchange of experiences and the identification of other measures that can be replicated in Malta, and specifically in the Gozo region. One such project is an innovative solar charging station that was showing during the site visits organised as part of the final conference held in Sweden. This project served as an inspiration for the municipality of San Lawrenz in Gozo, whose mayor was present for the conference as MIEMA’s stakeholder. The council has since then issued a tender for a similar solar charging station for electric bikes which are owned and rented by the council.</p>

Lessons learned report

PP5_ Lazio Region

The lessons learned from sharing experiences with the other project partners have been so many and significant. Among these, greater awareness has certainly been acquired about the importance of having more skilled and trained public officials and managers on the importance of promoting effective interventions for the energy efficiency of buildings. After all, these are the people who implement the initiatives in this regard, approve and finance the related projects.

At the same time, it is also essential to increase the sensitivity of private citizens towards this need, for that reason meetings will be held with university and school students, to sensitize the younger generations on the issue in question. The importance of having an adequate legislation, that should be comprehensive and updated has also emerged.

Another element that emerged is the one related to the need to address different, sometimes conflicting needs; for example, in the case of modernization of buildings of proven artistic, historical or cultural value. In this case, indeed, there are two opposing needs: on one hand, that of preserving the originality and integrity of these important buildings; on the other hand, that of making them more efficient from an energy point of view. Adequate regulations are therefore necessary.

Lessons learned report

PP6_ North-East Regional Development Agency, NE RDA

- Opportunities identified thanks to **Good practice:**

GOOD PRACTICE	INFORMATION
<p>Partner: Consortium Extremadura Energy Agency GP's name: IBERDROLA</p>	<p>Presented various good practices developed under the "Smart Solar" program in the Extremadura region, in which building owners allow the installation of photovoltaic panels on their roofs. The company promotes the provision of this clean energy through intelligent and customized solutions for all types of publics: in rural areas, industry, urban solar communities, neighbourhood communities, and homes. The company has already developed projects in all types of homes, both single-family homes and buildings, neighbourhood communities, and self-consumption communities, an option that allows the installation of those who do not have their own roof and find a common solar community 500 meters from the house with zero investment and 100% green electricity.</p>
<p>Partner: MIEMA GP's name: ECOGOZO</p>	<p>Implements a local strategy to increase the percentage of renewable energy produced for its own consumption. Another major concern is to reduce the gap between peak production and peak consumption with the help of batteries by providing financial support in the form of 5 grant schemes launched in 2021, which start from 50% of the value of the investment and can reach up to 80 % for storage capacity.</p>
<p>Partner: Consortium Extremadura Energy Agency GP's name: Audit tool</p>	<p>Law 4/2019 valid at the national level in Spain, and developed innovative IT tools for creating databases on the energy efficiency of buildings. They have established an energy rehabilitation plan for 685 educational buildings that will also include RES solutions for electricity production, which will transmit energy to the grid during the summer. An important aspect regarding the reduction of bureaucracy by exempting from the need for authorization RES (PV) installations with an installed capacity of less than 100 kW/h, which will only make information to the competent authorities. This change has led to an increase in installations from about 90 to over 750 installations in the last 2 years.</p>

Lessons learned report

- Opportunities identified during the **interregional event**

EXPERIENCE	INFORMATION
<p>Partner: Lazio region GP's name: ATTER</p>	<p>Is a regional public economic body with legal personality, entrepreneurial, managerial, patrimonial and accounting autonomy. Due to the funds allocated by the European Community through PNNR, it was possible to intervene in the renovation of several houses, by placing photovoltaic panels, condensing boilers with boilers, thermal rehabilitation of buildings. ATER's proposal is to renovate a residential complex with 1241 apartments through insulation works, but also the introduction of renewable energy solutions for domestic hot water, but also the production of electricity with the help of PV.</p>
<p>Partner: Consortium Extremadura energy Agency GP's name: INNOINVEST</p>	<p>Promoting cooperation in the field of RDI between companies and research centers to develop new energy products and services related to construction. Creating a stable structure to support innovation that allows the activation of cooperation between research centers and companies, promoting the development, design and manufacture of new products and services, based on innovative energy technologies applied to construction.</p>
<p>Partner: Energy Agency for Southeast Sweden GP's name: KÄRRBO PRÄSTGÅRD and BJÖRKETORPS GÅRD</p>	<p>Create an agriculture that is in harmony with animals and nature. Agri-voltaic systems present several Advantages over traditional ground-based photovoltaic systems: higher electricity yield, crop yield, and combination of revenues can lead to high land-use efficiency and shorter payback time. These projects demonstrate that agriculture and solar cells can coexist on the same land.</p>
<p>Partner: Energy Agency for Southeast Sweden GP's name: EXPO KARKSKRONA</p>	<p>A great leap forward for the city and municipality of Karlskrona, with national and international ambitions. Expo 25 will be held in 2025, where the municipality of Karlskrona will work with a wide range of businesses and other organizations to find innovative ways to shape tomorrow's society. The exhibition will focus on sustainability, new technologies, urban planning and development, social services and quality of life.</p>

- Opportunities identified during the **workshop**

Examples of good practice provided a rich set of information on the different technologies in RES for local energy production, as well as a wide range of possible applications with an impact on local and regional development.

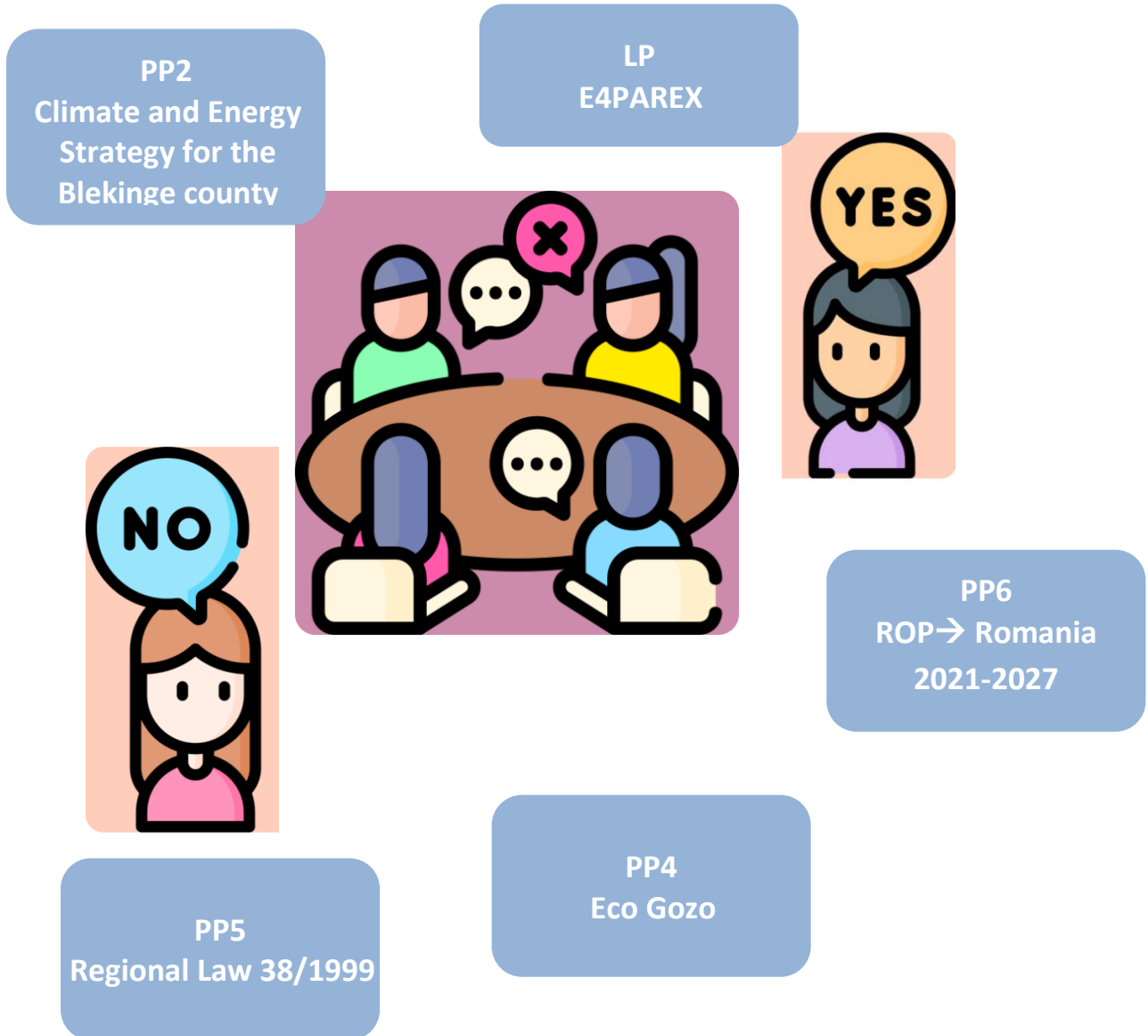
Also, aspects related to the beneficiary institutions, funding sources and volume of investments, implementation period, results obtained, difficulties encountered and last but not least the lessons learned and the potential for multiplication were highlighted.

Lessons learned report

The process of analysis and evaluation of these examples of good practice is aimed at capitalizing on the experience gained through the ENERSELVES project to improve the ROP public policy instrument, with particularization for the North-East Development Region of Romania.

Lessons learned report

3. Expected policy improvements



Lessons learned report

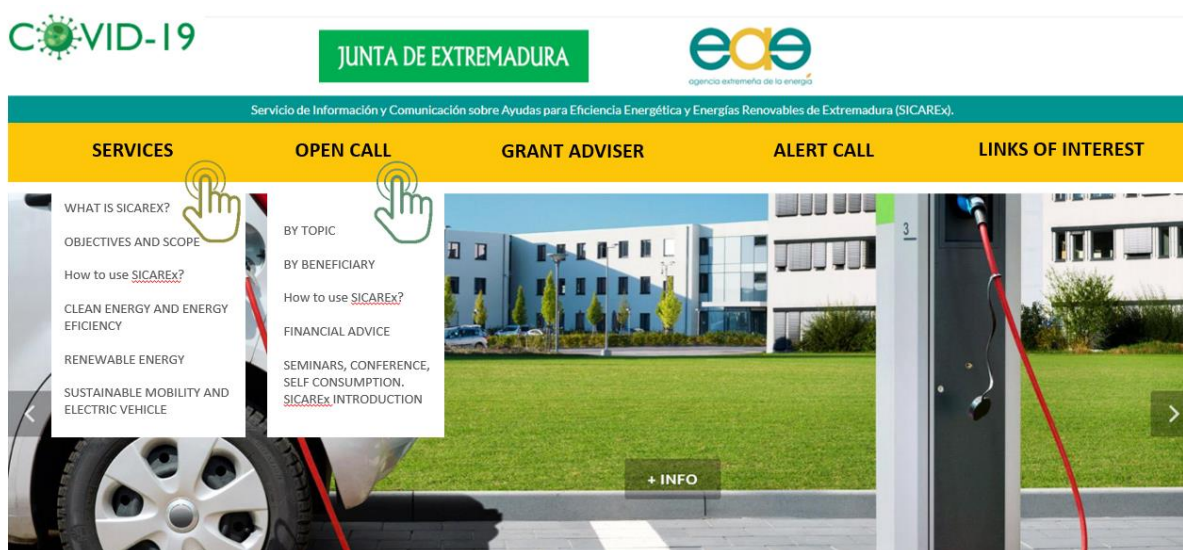
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1st Improvement:

As aforementioned in the Policy instrument introduction, one of the improvements that have taken place during this extended year was the OSS (SICAREx).

This website tool will allow citizens to have an online information point where they can be asses with regard to financial and technical advice.

On the 24th of January 2022, took place the OSS launched, thanks to the ENERSELVES project extended call.



Due to the COVID 19 situation, this kind of advising tool had been accelerated, in order to advise regarding the recovery funds grants launched in the same month, January 2022.

Furthermore, the support provides by this website tool is to a broad public (citizens, enterprises, and public authorities...), and it is offered by AGENEX hand.

The advising offered can be done by:

- PHONE: currently we are receiving 29 calls per day.
- ONLINE FORM: they are replied to within 24 hours of their submission.

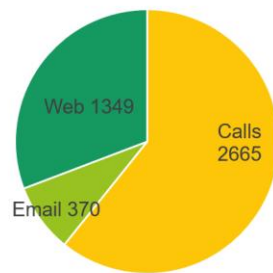
Another interesting point that this OSS includes is the ALERT CALL, which allows users to register their interest in a specific grant and they will receive an alert once the call is open.

Lessons learned report

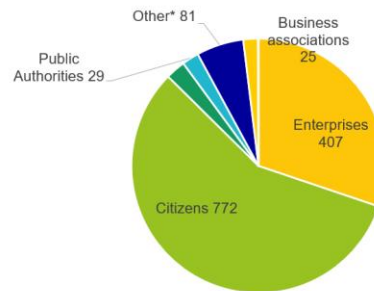
ACCEPTANCE:

Until the first of June 2665 phone calls have been answered (approximately 30 calls per day) and 1.349 forms have been received through the website (app. 15 per day). Where 58% of them came from citizens and 31% from enterprises.

Assistance requested:



Assistance by target group:



Lessons learned report

PP2_ Energy Agency for Southeast Sweden

RENEWABLE ENERGY updated measures from the new joint action program 2020-2022:

The following main priority axes are updated in the new joint action program:

WHAT ARE THE BIGGEST CHALLENGES AND HOW CAN THEY MEET REGARDING SOLAR ENERGY?

Electricity production is unevenly distributed across the country and there is a deficit in our electricity area. The transmission capacity from northern Sweden, where the largest electricity production is located, is limited. Investments in large-scale energy production and energy storage to secure access to renewable and planned energy require that various goal conflicts be resolved through broad dialogue and collaboration. An upcoming challenge is how the battery capacity of all rechargeable vehicles can be used in an efficient way in the energy system.

WHAT SHOULD BE ACHIEVED REGARDING SOLAR ENERGY?

Increased large- and small-scale production of solar energy, including energy storage.

WHAT NEEDS TO BE DONE?

Expansion of large-scale solar energy (solar and solar heating). There are two solar parks being installed in Blekinge and are finished during the summer of 2022. They are going to have a power of 21 MW.

HOW CAN THE WORK BE FOLLOWED UP?

Energy production can, for example, be monitored by looking at the number of permits granted for energy production facilities, as well as for the estimated amount of energy that they can deliver when they are completed. You can also follow the development of installed power and amount of energy produced.

WHO CAN CONTRIBUTE?

Industry, Property owners, Municipal companies, Municipalities, Government agencies, Blekinge Region, other organizations and private individuals.

REVISED GOAL IN CLIMATE AND ENERGY STRATEGY FOR BLEKINGE UNTILL 2030:

Blekinge's electricity production is 100% renewable by 2040. Solar will account for about 5% of electricity use in Blekinge by 2030. This corresponds to approximately 120 MW of installed power and is updated in the Energy and Climate strategy.

Lessons learned report

PP4_ Malta Intelligent Energy Management Agency, MIEMA

The 5th call of the Enerselves project allowed MIEMA to provide further support to improve regional plans for the island of Gozo. Proposed policy improvements include the following measures:

- Encouraging regular energy monitoring in public buildings, commercial premises and households to identify energy trends and changes (such as the changes observed during COVID-19) and be able to propose adequate recommendations for cost effective solutions
- Establishing the necessary legal framework to enable collective energy self-consumption in apartment blocks / neighbourhoods
- Promotion of schemes for technologies that maximise the energy self-consumption in buildings
- Provision of technical support to the general public that are interested in applying for green loans to assist with the capital investment in energy efficiency technologies and renewable energy systems

Lessons learned report

PP5_ Lazio Region

The main improvement, in terms of governance, achieved thanks to the participation in the ENERSELVES project, is the strengthening of cooperation among Lazio Region and the study center CITERA of the La Sapienza Rome University.

Tale collaboration, in turn, has initiated a process of training and support addressed cities and other local entities in Lazio, to offer them specialist technical assistance in energy efficiency matters.

These forms of support results of particular importance, especially during the current historical circumstances, in which many municipalities in Lazio will have substantial economic resources at their disposal to implement works of refurbishment and efficiency of their buildings

However, since many of these municipalities and local authorities are small in size and with few staff, they do not have personnel with adequate technical skills. for these reasons the specialist support and the availability of an adequate technical tool, such as the guidelines, represent a valid and concrete help at their disposal.

The goal is to ensure this type of training meetings even after the end of the project, in order to ensure its timeframe sustainability.

Lessons learned report

PP6_ North-East Regional Development Agency, NE RDA

During this period, the North-East Regional Development Agency focused on preparing a project fiche along with other national partners in order to approach the Technical Support Instrument of DG REFORM Flagship 6. Support to the Renovation Wave and 8.1 & 8.4. Support to the Implementation of the Just Transition in an attempt of acting, complementary to the ENERSELVES project, into the direction of influencing other policy instruments focusing on improving energy self-consumption in buildings. The Renovation Wave Strategy will enhance the quality of life for people living in and using the buildings, reduce Europe's greenhouse gas emissions and create a significant number of green jobs in the construction sector. Achieving these goals is challenging.

The areas of interest of the renovation wave are tackling energy poverty and the worst-performing buildings, and these barriers need to be overcome by implementing the following general objectives:

- Improving the energy performance of existing buildings;
- Improving the quality of life for all users;
- Reducing the level of energy poverty and ensuring affordable heating for low-income families;
- Streamlining mechanisms regarding building renovation;
- Developing professional skills and supporting innovation;
- Increasing the quality of buildings by improving safety and ensuring architectural quality.

The implementation involves amendments to regulations, development/coordination of public funding schemes, instruments for private funding, communication campaigns on renovation benefits and training actions, and implementation of pilot projects and applied research projects, with a concerted effort needed at institutional levels. The main problems identified at the institutional level were: low administrative and technical capacity of public institutions, an insufficient correlation between central and local government actions, lack of adequate data on buildings and energy use, monitoring tools, fragmentation of policies, lack of understanding of energy efficiency, on enterprises, designers and urbanists, customers/citizens. The project intends to support the improvement of coordination between government levels by setting recommendations measures, e-government solutions, guidelines for renovation policies and action plans, and implementation of pipeline projects, covering a broader approach, also improve administrative capacities through a pilot training program and study visits. Raising awareness at different administrative levels will be addressed by developing a communication strategy, campaigns, workshops, pilot projects of communication tools, and designing measures and action plans for making local ecosystems fit for sustainable renovation.

The support measures, needed to boost the renovation of the buildings and which will help solve the identified problems, are:

- Building renovation policies – energy poverty, worst-performing - this encompasses support for the design and implementation of renovation policies and measures in the

Lessons learned report

- area of energy poverty, worst-performing buildings, and social housing.
- Building renovation policies – public buildings - this covers support for the design and implementation of renovation policies and measures in the area of public buildings.
- Building renovation policies – renovation ecosystems and sustainable renovation -this encompasses support for the design and implementation of renovation policies in areas such as circular economy, whole life-cycle emissions, climate resilience, skills, labeling/certification, and digitalization.
- Coordination mechanisms - this covers support to enable effective governance of the long- term renovation strategies, taking into account the national energy and climate plans and giving special attention to the involvement of local actors.
- Cohesion policy funding for building renovation - this entails support for the successful implementation of the 2021-2027 cohesion policy programs on building renovation.

On the basis of regional/local public policy and the action plan, developed with the support of technical assistance, the replication potential of this approach at other regional/ local authorities will have a positive impact in supporting the implementation of 2021-2027 cohesion policy programs on building renovation. An important aspect consists of developing specific tools for authorities facing similar challenges, in terms of monitoring and evaluation mechanism of renovation data, capacity building and increase of awareness. The technical assistance will develop specific measures and tools for improving communication and awareness on energy efficiency renovation and financial opportunities for renovation investments, by designing a resource repository platform under a renovation knowledge hub for:

- Sharing of experience, best practices, success stories, lessons learned, technology and innovative solutions, problems and potential solutions in renovation.
- Facilitate the involvement of community regarding the substantiation of decisions at local level, promote public consultations.
- Development of accessible and transparent advisory tools, for communities of energy consumers, energy consultancy services, regarding relevant energy efficiency renovations solutions, financing instruments, and organization of promotion campaigns;
- Support the creation of functional regional/local networks (experts, stakeholders from institutions, academia, companies etc.) to facilitate the implementation of projects.

Romania's Sustainable Development Strategy 2030 proposes a new institutional framework to accelerate the implementation of the 2030 Agenda to ensure policy coherence and encourage multi- stakeholder engagement and civil society involvement.

There is a need to develop a complex mix of measures coming from different fields that require concerted action, permanent cooperation between public administration, technical specialists from universities and national research institutes, professionals from private practice, and commercial banks.

The national approach of the EU Renovation Wave implementation is currently based on 2 pillars – the first one - the national strategy implementation, and the second one - the NRRP

Lessons learned report

implementation that will generate important reforms in terms of legislation and practices, including by the national digital building registry, certification schemes for specialists and workers and will support more performant renovation works.

Several successful initiatives (Train-to nZEB, Fit-to-NZEB, Building Knowledge Hub), training for nZEB and passive house, Enerselves, were implemented and encourage self-consumption solutions in buildings, but not sufficient to cover the needs. The results of initiatives should be used as guidelines for developing new training programs, by ensuring synergy of approaches.

- Main Actors involved

Following the complementarity as a thematic area, application and field of interest, within the projects ENERSELVES and EMPOWERING (H2020) was established the Local Group for Sustainable Energy North-East which includes 12 town halls of some localities in the region (Moinești, Vaslui, Suceava, Roman, Miroslava, Holboca, Botoșani, Iași, Piatra Neamț, Bacău, Victoria and Tomești), 2 universities with faculties with specific profiles and relevant to the project field, namely “Ștefan cel Mare” University of Suceava (Faculty of Electrical Engineering and Computer Science) and Technical University „Gh. Asachi” from Iași (Faculty of Electrical Engineering, Energy and Applied Informatics and the Faculty of Constructions and Installations) and, Ieșeni Builders Guild Cluster.

At the level of the North-East Region, a Regional Working Group for Energy Efficiency was formed to elaborate the Regional Development Plan. Some of its members are also part of the Local Group for Sustainable Energy. The group consists of 12 town halls in the region (Bacău, Botoșani, Iași, Piatra Neamț, Suceava, Vaslui, Buhuși, Săveni, Hîrlău, Tîrgu Neamț, Gura Humorului, Negrești), 3 universities ("Vasile Alecsandri" Bacău, Ștefan cel Mare Suceava, "Gheorghe Asachi" Iași), an agency for environmental protection (Bacău County Agency for Environmental Protection) and an intermediate body (Bacău SOP Environment Intermediate Body - Region 1 North-East).

- Timeframe 2021-2027
- Funding Sources
 - Regional Operational Program
 - National Recovery and Resilience Plan
 - Operational Program for Sustainable Development
 - Modernization Fund
 - Contracts for Difference (CfD)

Lessons learned report

4. ENERSELVES 5th call conclusions

LP_ Consortium Extremadura Energy Agency (AGENEX)

Thanks to this extended year, partners had the opportunity to exchange experience and knowledge regarding how self-consumption in buildings has been affected by the COVID 19 situation.

In this regard, it's important to highlight that self-consumption not only has been influenced by COVID in the last period but also by the hard times that Europe is currently living with the war.

Spending more time at home and the change in the way we understand spaces (multifunctionality), had been a tool used to promote self-consumption within residential buildings. And allow public buildings to be understood, rather than static, as something that could be used as a tool by their environment. As an example of this, IBERDROLA company introduced at ENERSELVES extended call final event a share PV installation where the core of the production was in an educational centre, and the energy was shared with the nearby buildings.

Furthermore, the rise in fuel prices due to different reasons, one of them the Ukrainian war, has accelerated and promoted the use of RES in buildings.

PP2_ Energy Agency for Southeast Sweden

During the project, five regions have been working with policy instruments and focusing on energy self-consumption in buildings. The main aim of these policies is to have a strategy or a program for investing in buildings in order to increase energy efficiency, preserve nature, improve infrastructure and increase renewable resources.

Each region has taken different measures and different targets in order to achieve its goals. Under the period of a year exchange of experience and lessons learned have helped in updating policies and related action plan in each region. In Blekinge, focus has been towards achieving the target of solar energy which has been highlighted in the new action program that is under processing. This process has been efficient thanks to the Energy Agency of Southeast Sweden's participation with ENERSELVES+ project in Energy Cooperation Blekinge where the process of updating the action program has occurred.

Good examples shared during the project give opportunities for the participating regions to get new ideas for projects and development possibilities.

Agrivoltaics are unique solar systems that can be spread as a good example to different regions. The specialty of this installation is in combining cultivation with self-consumption. This installation gives new ideas for exploiting lands and streamlining land usage worldwide.

High energy prices in Europe have been a challenge for the past year. Due to that many ideas have been born and discussed. For instance, during the project solar communities have been talked about, which allows properties with no possibilities to install solar energy to do such an investment.

Lessons learned report

The challenges of Covid-19 have been affecting the work with energy efficiency and renewable resources during the year due to its impact on the global economy. The funding problem was the main challenge for all regions since a lot of activities have been paused like for instance producing/ updating the policy instruments.

The pandemic has also postponed the work with improving laws and restrictions in some countries but at the same time increased the possibility at the same time in the interest of solar energy and energy storage.

In conclusion, with the help of the ENERSELVES 5th call a lot of activities have been planned in order to improve the regional development thank to focusing on policy establishments and developments. The focus has been towards working with self-consumption and renewable energy on a high regional level aiming to exchange experience and spread development on an international level.

PP4_ Malta Intelligent Energy Management Agency, MIEMA

The one-year Enerselves project extension through the 5th call has been an excellent opportunity to capitalize on the results achieved during the first two phases of the project, in particular the action plan for Gozo. Local activities revolved around stakeholder engagement and promotion of lessons learnt from the Enerselves project to address new needs that arose during the pandemic. Thanks to the project, plans to improve the energy self-sufficiency of the island and reduce the carbon footprint have been strengthened and good practices from other regions identified and applied to the local context.

PP6_ North-East Regional Development Agency, NE RDA

The Regional Action Plan provides details on how the lessons learned from good practices presented by the ENERSELVES project partners following the exchange of experience will be able to be used/adopted/adapted/exploited to improve the policy tool and implementation framework in-depth during the project implementation period.

The general conclusions regarding the good practices promoted within the ENERSELVES project showed us that most of the projects:

- were implemented by public actors (exemplary role of the public sector);
- benefited from public (different level) co-financing;
- did not specifically pursue the achievement of a high return on investment, but also pursued the social and environmental aspects of the projects;
- did not implement a single RES technology, but applied a mix of RES technological solutions to ensure the coverage of needs in different percentages;
- for the major ones, more expensive integrated projects were implemented.

The results of the analysis and evaluation process carried out at the expert level were discussed at length with the representatives of the potential beneficiaries (stakeholders). It should be

Lessons learned report

emphasized that the discussions with stakeholders highlighted various examples of good practices of interest at both regional and local levels and outlined the actions needed to implement them in the North-East region.

At the same time, the aspects related to the implementation of the different actions were discussed and the responsibilities for the good development of these actions were established. The correlation of the different actions led to the structuring of the Regional Action Plan, and the experience gained within the good practices from the regions participating in the ENERSELVES project was highlighted.

It should be noted that the choice of a certain RES technology is influenced by the type of application, local energy resources, or other socio-economic considerations. Thus, taking into account the specifics of the region, the energy recovery of biomass (in high-efficiency cogeneration) can be an alternative of great interest. Wind or high-energy care solutions have a particular solution and no potential for use in a built environment.

The North East Region proposes for 2030 the following strategic elements:

- the vision: The North East region will be a competitive, sustainable, resilient, and inclusive space, where you will want to live, work and invest!
- the general objective: carrying out a balanced development in the region based on a process of intelligent, sustainable, and inclusive economic growth, which would lead to an increase in the quality of life and the reduction of the intra- and inter-regional development gaps.

Implementing long-term renovation strategy is a key tool to support the transition to a stock of high- energy decarbonized buildings by 2050, facilitating the cost-effective transformation of existing buildings into near-zero energy buildings.