



LIFE – LOOP

D2.2 Pilot Analysis and Status Assessment

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1 Introduction

Pilot analysis will examine and evaluate the pilots' status. The analysis will consist of the current status of energy community organizations in pilot areas in the LIFE LOOP.

About pilot analysis

The goal of LIFE LOOP pilot analysis is to provide comparable overview of the pilot's energy communities, its maturity and context. This report was based on self-assessment and is accessible to a wide range of audiences. Primarily, it serves as a snapshot of the current developmental stage of each of the pilot energy community organisations, which will enable tracking progress. In addition, the report is useful for other energy communities in EU. To achieve that, we will ensure that crucial information, ideas, and suggestions in the process of collaborating between local and regional authorities and the energy community are widely distributed throughout Europe. This activity is connected to communication and dissemination strategies that are in place to reach the project's replication and capacity building.

LIFE LOOP will communicate key resources and tools developed by the project, and through this, establish LIFE LOOP as a unique learning hub that gathers the expertise of the different stakeholders engaged in the topic of energy communities. We will build further on existing community energy expert initiatives and platforms such as the EU Energy Communities Repository and the Energy Community Platform and will specifically focus on the collaboration between local authorities and local groups in the target region. We aim to maximize high-quality engagement with stakeholders on EU and local levels using multiple communication channels and tools.



2 Pilot assessment

2.1 Green Energy Cooperative (ZEZ), Croatia

Date of organization establishment

ZEZ was established on 29 September 2013 as an energy cooperative.

Key stakeholders and partnerships

ZEZ cooperative gathers natural persons/individuals, small to medium size SMEs, and municipalities in the collaborative ecosystem of the citizen energy movement with a focus on solar energy. On a national level the cooperative is focused on multilevel partnerships with energy market players (energy traders, TSOs, and operators), technical actors (R&D, project houses, and installers), financial organisations (banking and investments actors), and local authorities (municipalities, energy agencies, and cities). On the EU and regional level, the cooperative is actively collaborating with REScoop.eu, other energy cooperatives and communities, research institutions and public bodies in peer-to-peer exchange and policy making.

In the LIFE LOOP, project key stakeholders are the city of Zagreb and regional energy agency (REGEA). Also, ZEZ will collaborate with city of Poreč (satellite partner) and other cities and municipalities.

Location of conduct of the majority of activities

The location of ZEZ is the city of Zagreb, but the cooperative collaborates with many municipalities in central and northern Croatia and Istria region. Also, education and workshops are organised across the whole of Croatia.

Main services or activities

The core business of ZEZ is providing direct support in the development of energy community projects with a focus on roof-top solar energy for citizens (On Sunny Side service), citizen initiatives (direct support of developing community energy projects) and municipalities (partnerships). Also, ZEZ is focused on providing information and educational services for citizens and municipalities. ZEZ is also engaged in national and local advocacy work, focusing on topics such as energy sharing, energy communities, collective self-consumption.

The tables below capture the community, technical and environmental factors that will be discussed in more detail in the next section.



Table 1. Community Factors

1 - Community Factors	Yes/No
Defined vision/mission	Yes
Members list	Yes
Governance Rules (Inclusive, Transparent, Specific)	Yes
Is your governing body gender balanced ?	Yes
Do you have external communication channels?	Yes
Do you have paid staff?	Yes
Do you have a member's feedback mechanism?	Yes
Is feedback documented?	Yes
Do you transfer knowledge to other initiatives ?	Yes

Table 2. Technical factors

2 - Technical Factors	Yes/No
Developed Business model	Yes
Do you hold the necessary permits or licences to perform your main service.	Yes
Registered (legal form)	Yes
Financial breakeven point	Yes
Offering multiple services	Yes
Available capital or assets	Yes
Do you know your cash flow ratio and the internal rate of return of your projects?	Yes
Is your debt ratio positive ?	Yes

Table 3. Environmental Factors

3 - Environmental Factors	Yes/No
Relationship with the local authority	Yes
Administrative barriers	Yes
Regular tracking of risks in your energy community (Risk Registry)	Yes
Financial and business support	Yes
Do you know of supportive networks for energy communities?	Yes

2.1.1. Community factors

Mission or statutory goal

The mission of ZEZ is to ensure that energy is in the hands of citizens; for citizens to have the ownership and right to make decisions on energy issues that affects their livelihood.

Focused energy technology



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The main focus of ZEZ is solar energy, especially on public roofs.

Governance model

The cooperative is governed by its statute. The main bodies of the cooperative are prescribed by the statute, and they are the Member assembly, Cooperative Manager, and Supervisory board. The Member assembly consists of all cooperative members. Assembly makes decisions according to the agenda that was delivered to the members with the invitation to the meeting. During general assembly meetings, all members have a right to vote following the principle of “one member one vote” led by the president of the Member assembly. The second body is the Cooperative manager chosen by member assembly. The Cooperative manager directs the work and operation of the cooperative, following the provisions of the statute. The third body is the Supervisory board which supervises the operations and work of the cooperative and the Cooperative Manager. Governance model of cooperative is prescribed by national. ZEZ manages an official Member List and updates relevant trade court on any member change.

Staff members

ZEZ has 21 members. 14 full time employees are currently working in ZEZ.

Local authorities supporting community energy projects in Croatia

In the Croatian context, cities that are supporting energy community projects are Cres, Mali Lošinj, Poreč, Križevci, Zagreb, and Prelog. In total, 6 cities actively support community energy projects. These cities are pioneers in the development of innovative community energy projects, although only in the initial stages of development.

Internal and external communication channels

The communication channels are divided in three main groups: the general public, local/national authorities, and energy initiatives. In communication with the general public, we aim to raise awareness on the topic of citizen-led energy transition and community energy. In promotion of community energy, we use media outlets, social and business media (Facebook page with 7,300 followers, Facebook group Solar club with 33,000 members, ZEZ LinkedIn, and ZEZ Instagram), and in addition websites (ZEZ and On the Sunny Side platform). Having a wide array of communication channels ZEZ has a pool of 5,700 subscribers to the newsletter. In communication with local/national authorities, ZEZ communicates directly to develop the pilot projects (directly by email and phone). For internal communication with members, e-mail and phone is used to communicate cooperative related matters.

2.1.2. Technical factors

Energy production capacity

ZEZ has two implemented projects in 2018 and 2019 with total capacity of 60 kW to produce solar energy on public buildings. In 2023 ZEZ plans to install 200 kW PV pilot projects in the city of Zagreb (with investment up to 200.000 EUR) with the outlook to 2026 to have 2.000 kW of solar installed.

Identified opportunities for the development

ZEZ is continuously exploring opportunities for community energy projects and building public-private partnerships. On the local level, it explores opportunities based on an ambitious “Plan of solarisation of the



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city of Zagreb” that is featuring a 10 MW of capacity earmarked for public buildings and active involvement of citizens. The other two ambitious cities are the city of Križevci and the city of Poreč to start community energy projects. Besides these cities, ZEZ is exploring collaboration opportunities with 15-20 cities and municipalities.

The main opportunity is in the LIFE LOOP project, partnering with the city of Zagreb as an icebreaker for the energy communities to invest in solar energy on public roofs. Also, partnering up to build meaningful and replicable tendering processes for other cities to replicate and involve energy communities in investments in public infrastructure.

Educational activities for members and beyond energy community members

Educational activities are provided to ZEZ members, general public, SMEs and public authorities. Educational activities focus on providing support to citizens to invest and install their rooftop solar PV through On the Sunny Side platform using Solar Literacy online modules. In addition, live lectures and webinars for citizens are often organized in partnership with municipalities. For energy communities and initiatives, ZEZ regularly provides supporting and educational activities, based on the maturity of energy communities and providing direct one to one support sessions. Awareness raising and advocacy is done via policy labs in collaboration with relevant stakeholders in energy sector. Motivating and capacity building for cities and municipalities on the topic of community energy is conducted through direct sessions and workshops. Outreach to the general public is done through communication channels (websites, newsletters, press release, participation in interviews/conferences, and social media).

2.1.3. Institutional and environmental factors

Role of local authority for your organization

Local authorities play crucial role for the community energy. The cities partner with ZEZ to create informative and educational campaigns on the topic of renewable energy and energy communities. Also, several local authorities provide co-funding support for household rooftop solar PV (e.g. covering development cost for project design).

Several cities and municipalities are willing to engage as partners with ZEZ in research projects focused on developing community energy. Partnering with local authorities on projects brings many positive results for the community and is crucial for ZEZ’s business model.

Local authorities actively supporting community energy projects

Currently, the level of awareness on community energy is very low among local authorities. However, there are a few cities and municipalities with genuine interest for development of community energy projects. ZEZ, with the support from the City of Križevci has implemented two crowdfunding community energy projects on public buildings and provided support for new local energy coop (KLIK). The city of Prelog helped to fund the energy association "Green Prelog" that partner with city in educating and implementing tenders for individual household PVs. The city of Poreč is exploring and supporting the development of citizen voucher model based on providing public services in exchange for investing/building solar PV. The cities of Cres and Mali Lošinj are actively participating as members in the development of investment energy cooperative and non-integrated PV project.





Furthermore, cities lay the groundwork for renewable energy and community energy at the local level by including it in their plans and strategies. One such example is the "Solarisation plan of city Zagreb," which sets the goal to develop 10 MW of solar capacity on public buildings, with active citizen engagement, until 2025. To achieve this goal, the city of Zagreb is creating a bidding process for energy communities, with an emphasis on power purchase agreements and market models, such as roof rental and energy trading.

Existing supporting mechanisms for energy communities

Currently, there are no supporting mechanisms at the national or local level for energy communities. Up to date status on legal framework and supporting mechanisms can be found at REScoop.eu Transposition Tracker (<https://www.rescoop.eu/policy/croatia>).



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2.2 Minoan Energy Community, Greece

Date of organization establishment

9 of October 2019

Key stakeholders and partnerships

Individuals, the Regional Authority of Crete, the Municipalities of Minoan Pediadas, Archanon - Asterousion and Viannou, Municipal Corporation, Commercial Cooperatives, The Holy Metropolis of Arkalochori, Kasteli and Viannos. MEC has around 600 members.

The key stakeholders of MEC are the members of the Management Board and, most importantly, the President, and the members of the scientific - consulting team. All initiatives, activities and projects of the Community are undertaken and accomplished by them. Depending on the specific activity or project different experts can be involved. Also, depending on the project or the activity, a Municipality or the Regional Authority of Crete, official members of the Community, can be also involved.

Apart from the members of MEC, external key stakeholders can be:

- Any manufacturers or equipment providers or contractors for the projects under development. So far, given that MEC has implemented two photovoltaic projects, which actually were assigned to a contractor, the involved stakeholders were only the contractors of the projects.
- The local insular utility, which for the Greek islands is the Hellenic Electricity Distribution Network Operator, which is the responsible authority for the licensing and the electrical connection of the photovoltaic plants and all the electricity production projects from renewables.
- The Regulatory Authority of Energy, the responsible authority for the licensing of large size electricity production projects from renewables.
- The Ministry of Environment and Energy, with which MEC has established a regular and close contact, claiming the configuration of a more supportive legal framework for the energy communities in Greece.
- The RESCoop.eu and the “Clean energy for EU islands” initiative, in which MEC participates as official member.
- Other energy communities in Greece and non-governmental organisations, such as Greenpeace, Electra Energy, WWF, with which MEC has also a close and regular contact for issues of common interest (e.g. legal framework, proposals in European or national funding calls etc).
- The local Municipalities in Crete and, in general, the whole insular community in Crete, where MEC aims to proceed with an integrated capacity building programme.
- All the licensing authorities (e.g. the antiquities service, the forest authority etc).
- The Universities and academic institutes in Greece, with which MEC holds close relationships and collaboration.

Location of conduct of the majority of activities

Municipality of Minoan Pediadas, Region of Crete, Greece



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Main services or activities

Construction of photovoltaic parks which operate as net-metering projects, for the annual compensation of the electricity consumption of the involved members in the projects. Two parks of 405 kW and 1 MW have been so far constructed. The third one has been applied for licensing. Also, the study has started for the first wind park of 12 MW. A small wind turbines station of 120 kW is going to be constructed, hopefully during 2023. Participation in two European projects, the Life LOOP and the Horizon 2020 project "WENDY" focused on the impacts of wind parks and the public acceptance.

A capacity building programme is going to start shortly, estimated to last 24 months and deliver roughly 100 physical info-days in all Crete. The programme will be funded by the Regional Authority of Crete and aims to raise awareness in the Cretan insular community on energy transition: meaning, necessity, risks and opportunities, routes and pylons, active involvement of local population and anticipating benefits. The programme will focus on the general population, with open-public info-days, while there will also be adapted presentations and events for schools (mainly secondary) and target groups of professionals (e.g. in the tourist sector, in agriculture, for municipal staff etc). There will also be extensive electronic and real tutorials developed, such as interactive applications, 3D animation videos, maquettes etc.

Finally, a major target is the exploitation of the abundant biomass resources in Crete for the heating of settlements through district heating networks and cogeneration plants.

The tables below capture the community, technical and environmental factors that will be discussed in more detail in the next section.



Table 4. Community Factors

1 - Community Factors	Yes/No
Defined vision/mission	Yes
Members list	Yes
Governance Rules (Inclusive, Transparent, Specific)	Yes
Is your governing body gender balanced?	No
Do you have external communication channels?	Yes
Do you have paid staff?	Yes
Do you have a member's feedback mechanism?	Yes
Is feedback documented?	Yes
Do you transfer knowledge to other initiatives?	Yes

Table 5. Technical factors

2 - Technical Factors	Yes/No
Developed Business model	No
Do you hold the necessary permits or licences to perform your main service.	Yes
Registered (legal form)	Yes
Financial breakeven point	No
Offering multiple services	Yes
Available capital or assets	Yes
Do you know your cash flow ratio and the internal rate of return of your projects?	No
Is your debt ratio positive?	Yes

Table 6. Environmental Factors

3 - Environmental Factors	Yes/No
Relationship with the local authority	Yes
Administrative barriers	No
Regular tracking of risks in your energy community (Risk Registry)	Yes
Financial and business support	No
Do you know of supportive networks for energy communities?	Yes

2.2.1. Community factors

Mission or statutory goal



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MEC aims to undertake a regulatory and leading role on how energy transition will be implemented in Crete. Energy transition can be the pylon for a fair, rational and sustainable economic and social development for all Cretans, by activating them in the process and maximising, in this way, the anticipating benefits for the local communities.

Key energy technology

MEC focuses on all technologies that harness the available RES potential in Crete: photovoltaics and solar thermal collectors, for electricity and heat production, wind parks and small wind turbines, combined heat and power plants, operating with biomass and district heating and energy saving passive and active measures in buildings and other facilities.

So far MEC has implemented only two photovoltaic plants, both of them operating as net-metering projects. This is because Crete, despite it has been electrically connected to the mainland Greek grid since June 2021 with an underwater cable, is still considered as an insular system, so large size non-guaranteed power production projects (e.g. wind parks) cannot be licensed, unless an open call by the Regulator has been announced. This is clarified just to make clear that MEC does not only focus on photovoltaics. Photovoltaics are the only so far implemented projects only incidentally. MEC also focuses on all technologies mentioned above, since it is considered that all of them are needed for a smooth, rational and effective integrated energy transition in Crete.

Governance model

The key governance body of MEC is the General Assembly. We have at least one regular General Assembly meeting per year and, in special occasions (e.g. for a new large size project) we can have more. Each member in the General Assembly has one vote, regardless his or her percentage on the Community's shares, which, by the law, can at maximum be equal to 20% for individuals and 50% for Municipalities. The second in order body is the Management Board, which has 11 members and is elected by the General Assembly with a 4-year tenure. The Management Board has regular meetings, normally once a month or even more frequently, depending on the current issues. It is supported scientifically by the scientific - consulting team of the Community, which consists of more than 30 experts on the field of energy from various sectors: mechanical, electrical, civil engineers, architects, economists, geologists, programmers, lawyers, accountants etc. The scientific team does not have any vote right in the Management Board. Each member of the Management Board has one vote. The Management Board at its first meeting selects the President of the Community.

Staff members

We have one full time equivalent employee. Also the experts of the Community work mostly voluntary. Some of them have to work for the Community almost on a daily basis. The same also happens with the President of the Community, who, being a pensioner, works more than 8 hours daily for the Community.

Local authorities supporting community energy projects

The following authorities are involved in community energy projects: 1. With Minoan Energy Community we have the Regional Authority of Crete and three Municipalities. We are expecting hopefully 7 more within the frame of the Life LOOP project, the two of them most probably in the next month. 2. In Sifnos Energy Community the Municipality of Sifnos is also a member of the community. 3. In the Energy Community of Chalki "Chalki-On" the local Municipality of Chalki is also a member of the community. 4. There is also



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considerable activity in municipal energy projects from the Municipality of Argos Orestikon in Western Macedonia (North Western Greece). 5. The Municipality of Malevizi in Crete has also founded its own energy community.

Internal and external communication channel

With the members of the community we use email communication, our web-site, our pages in social media (Facebook and LinkedIn), our YouTube channel, the General Assembly and their phones. With the general public we use also our pages in social media, our web-site, our YouTube channel, press releases in the local press, radio interviews, participations in exhibitions and other. With the local and national authorities we have official correspondence via e-mails, phone calls, we often have physical meetings and we also use the personal contacts that some members of the Community have.

2.2.2. Technical factors

Energy production capacity

So far, the Community has constructed two photovoltaic parks, the first one of 405 kW and the second one of 1 MW. The first one was officially connected to the grid on the 13th of May 2022. The second one has been fully constructed but has not yet officially connected to the grid.

Identified opportunities for the development

Certainly the energy crisis that we face since summer 2022 has stimulated citizens to join our Community, as they are seeking for a way to reduce their considerably increased electricity procurement bills. The integration of the construction of our first project also acted as a token which convinced the potentially interested citizens in Crete about our objectives, our integrity and our capacity to convert into real works our visions and targets. Our awards also from the European Commission in September 2022 (EUSEW 2022) and in October 2022 (Islands Gamechanger competition) and their dissemination through the social media and the local press also contributed to the popularity of our Community. These achievements have also triggered the interest of third parties in our Community, so as we are regularly invited to participate in Consortiums for new proposals in European funded calls. A crucial parameter also has so far been the scientific - consulting team that the Community has, all of these experts official members of the Community, who has worked so far mostly on a voluntary basis and has the capacity to develop a large variety of energy transition projects. This gave the chance to MEC to design and develop several projects without any expenses, to fully undertake the licensing process for two photovoltaic parks, to support the participation to more than 5 proposals and so on. If these experts – members of the Community wouldn't be available, all these would have never been achieved.

A new ambitious project on the capacity building of the Cretan community is going to start in the next months, with an estimated duration of 24 months and more than 100 physical info-days in all cities and towns of Crete. This project will make our Community well known to the whole island and will enable us to gain access to local communities and develop with them and with their approval new projects. Finally, perhaps the most important opportunity of all is that MEC is activated in a large island like Crete, which has high energy demand for all sectors and with high availability of wind, solar and biomass potential, which make Crete one of the richest regions in the planet with regard to the available renewable energy sources potential.



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Finally, MEC, having already gained some popularity in Crete, has the chance to be invited to participate in local funding calls, such as the LEADER programme etc.

Educational activities for members and beyond energy community members

Right after the foundation of our Community we delivered 7 info-day workshops in Arkalochori (two), Kastelli, Thrapsano, the Municipal Board of Viannos, the Municipal Board of Archanon - Asterousion and in Heraklion. However, the restrictions introduced since March 2020 against the dispersion of the COVID-19 pandemic postponed any relevant actions. Hence, MEC is well aware on the importance and the necessity of the adequate awareness of the local citizens on the energy transition topics. So, as mentioned previously, with the funding support of the Regional Authority of Crete, we have designed and it is going to begin within Spring 2023, a capacity building programme, which will include more than 100 physical info-days in all municipalities, towns and cities of Crete, in schools, in professional oriented groups (e.g. hotels' owners, farmers, municipal employees etc). Additionally, extensive online educational material will be developed, like 3D animation videos, notes and presentations, interactive learning stuff, an e-class platform, plus physical maquettes, explaining the operation of all energy production and saving systems.

2.2.3. Institutional / external environment factors

Role of local authority for your organization

The involved Municipalities and the Regional Authority of Crete did not initiate the Community, they simply followed us after relevant invitations, face-to-face meetings and presentations in the Municipal Boards. So far the two already implemented photovoltaic plants have been constructed in two Municipal land properties, former landfills, which were rented by the Municipality of Minoa Pediadas. The Regional Authority of Crete has also played a crucial role, since it funded the participation in the second photovoltaic park of 100 low-income families, earthquake victims of the strong earthquake that struck Arkalochori on 27/9/2021. It also funds the capacity building programme mentioned previously.

Existing supporting mechanisms for energy communities

In Greece there are no real substantial supporting mechanisms, apart from some very few favourable legislation regulations for energy communities with more than 60 members. We expect and regularly officially request through our meetings and correspondence with the Ministry of Environment and Energy full licensing priorities and funding mechanisms for energy communities of "broad basis" (more than 500 members in Crete or 100 members in small islands and with the involvement with the local municipalities), which have a clear and proved developmental and social orientation. Unfortunately, so far are proposals have not been adopted and introduced in the relevant legal framework.



2.3 Bistrita, Romania

2.3.1. Context

As of March 2023, there are no active energy communities in Bistrita municipality. Overall, while an enabling framework is seen as an outcome in national legislation, the details of the enabling framework, and support for RECs, must still emerge through concrete policies and measures. In response to a referral to the Court of Justice of the EU (CJEU) for failure to transpose the Renewable Energy Directive, Romania passed an Emergency Ordinance in November, 2022. For the most part, it takes the same approach as the transposition of CECs, meaning it more or less copy-pastes the text of the Renewable Energy Directive, without providing any further specificity

Bistrita is located in the north-eastern part of the Transylvanian Plateau in Romania, and it is crossed by the river with the same name. The city's administrative unit covers an area of 145.47 km² and has developed in recent years as an attractive economic and educational centre at county level, recording an increase of its residential population to approximately 94,600 inhabitants, a rapid spread of residential areas and an intensified economic activity.

As a result, one of the most serious issues in recent years has been the increase of air pollution as CO₂ emissions grew by almost 5% since 2008, to a record level of over 350,000 tonnes in 2021. The community's expenditure of electricity, natural gas and gasoline (as a whole) for daily activities has overgrown the savings achieved by changing appliances or cars with less energy consumption (as national programmes have been continuously developed and implemented in these matters).

Nowadays, one of the main challenges Bistrita is facing in terms of CO₂ emissions is modernizing collective housing complexes dating back from 1960-1980. Out of the existing 487 block of flats in the city only 130 have undergone interventions for improving energy efficiency (74 during 2014-2020). These constructions are located in the pericentral area and have between 4 and 10 levels, thus creating high areas of heat loss and therefore requiring higher energy consumption especially during the winter season.

Moreover, besides the collective housing, Bistrita has a wide residential area with individual housing buildings spread across the city, totalling over 8000 constructions. Many of these houses require even more energy in order to maintain indoor temperature compared to apartments and are not equipped with renewable energy production sources. These products have been further developed in recent years but the population did not show a high interest for them due to high installation costs (until recently) or high administrative burden.

Currently, in Bistrita there are 127 public buildings (with an estimated 4700 tons of CO₂ emitted), all of which are included in the renovation plan of the municipality for 2021-2050. This plan proposes a set of interventions on the buildings' envelope and replacement of their utility systems, but also suggests implementing alternative electricity and / or heat generation systems from renewable resources and integrated energy management systems.



2.3.2. Climate change mitigation

Starting with 2021, Bistrița municipality is a signatory of the “Green City Accord”, thus committing itself to implement public policies and programs in an integrated manner, so as to achieve the ambitious goals that will be set for each of the 5 areas of environmental management: air, water, nature and biodiversity, circular economy and waste, and noise.

Also in 2021, Bistrița completed the Long-Term Renovation Plan of the Public Buildings stock in Bistrița for 2021-2050 which is in accordance with the objectives of the National Long-Term Renovation Strategy to support the renovation of the national stock of residential and non-residential buildings, both public and private.

The municipality did a prioritization of Structural Funds in the fight towards reducing energy consumption, as 30% of the collective housing stock older than 1990 was refurbished, reaching the best renovation rate in Romania. Bistrița managed to mobilize its local buildings’ associations in taking action, however the driver for this change was the citizens’ wish for improved comfort, not climate change fight.

Moreover, in 2020 Bistrița developed a strategy for the city's heating and cooling system on medium and long term. Since 95% of the fuel used to heat buildings in Bistrița is natural gas and most houses have individual boilers, it is necessary to consider the transition to renewable individual heating systems. Although cooling was not a problem for Bistrița, the summertime high temperatures are raising more and more questions related to the need and choices for cooling systems, particularly for non-residential buildings.

Also, in 2021 Bistrița has become a member of the European CIVITAS network, one of the representative programs that helps the European Commission achieve its ambitious mobility and transport goals, namely those of the European Green Deal. The city has started to use the ERDF funds for mobility issues like the Green Line project, which is a pilot project establishing a new local public transport line across Bistrița using a dedicated priority lane for electric buses, and also for planning the construction of 45 km of bike lanes until 2023.

2.3.3. Main areas of intervention

Strategic documents and projects

At local level, Bistrița’s commitment to reduce its energy consumption and carbon footprint has been underlined through several strategic documents:

- The Sustainable Energy and Climate Action Plan (SECAP);
- The local Integrated Strategy for Urban Development (ISUD);
- The Sustainable Urban Mobility Plan (SUMP) 2015-2030;
- The Long-term renovation plan for the public buildings stock in Bistrița for 2021 – 2050.

The above-mentioned plans have been developed in accordance with the existing national legislation and also create synergies with existing national, regional and county level strategies related to reducing GHG emission levels and energy consumption.



Citizen engagement

The aim is to promote events and trainings throughout the community in order to improve the level of information citizens receive and increase their participation in local decision-making on topics related to environmental protection, climate change, sustainability and energy issues.

Actions will be implemented taking into account the critical points and difficulties the municipality has observed over the years in regard to effective participation. The access to scientific information will allow a broader perspective over the sustainable environmental development principles, enabling citizens to become more aware of irrational use of energy and to correct their consumption habits accordingly.

Administrative capacity

The municipality will create and train a specialized team dedicated to monitoring the Climate Neutrality Action Plan of Bistrița and carrying out activities on topics related to environmental protection, climate change, sustainable development and energy issues. Also, the team will be responsible of creating, editing and publishing the detailed annual database of the CO₂ emissions from all sectors. Nonetheless, the team will be coordinated by a dedicated sustainable energy manager (new position within the City Hall), whose responsibilities will involve not only management of the team, but also the coordination with other departments and projects.

Energy production

In addition to the already considerable environmental benefits, the exploitation of renewable energy sources (RES) allows the efficient reduction of greenhouse gas emissions. Consequently, there is a strong need to implement local energy policies in order to encourage and increase the use of available energy from local renewable sources.

The critical factor in this regard is the limited availability of appropriate land areas available for the production of energy from renewable sources. The potential for ground installation of solar and wind systems of any kind is limited, but the major potential for capitalization of solar energy in Bistrița is the installation of such systems on artificial structures or roofs.

According to the data provided by the National Energy Regulatory Authority (ANRE), on the territory of Bistrița municipality there are 26 electricity production units from renewable sources, for another 53 units there are technical approvals for connection. Most of the production units have small installed powers, below 100 kW, being small solar energy production units used by individuals. Therefore, the municipality of Bistrița presents potential for the use of solar energy in local systems, it being necessary to encourage such investments in the future in order to increase the share of electricity consumption produced from renewable sources.

The municipality of Bistrița aims, among other things, to install photovoltaic panels on a number of 11 educational units for the production of electricity from renewable sources to improve their energy performance and at the same time reduce CO₂ emissions. The way we envisage things is that as the PV panels are installed in educational units, the ones who used it (children, teachers) will learn first-hand on how





alternative ways of energy are working. We are counting on the snowball effect to roll over, as the children go home and tell their parents about it and so they will also get interested.

Another thing that we want to do within this project is to organize the workshops with the citizens that are interested in the programme "The Green House." This programme is a national programme where individuals can request a subsidy for rooftop PV for individual houses.



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3 Comparison and conclusion

Based on interviews and self-assessment of each pilot location, it is clear that all pilot locations have unique starting points and vastly different local context for energy communities. It was evident that cultural and social factors were just as important for energy communities as technical and legislative framework. The first two pilots are community-driven, while the last one is led by the local municipality.

Community factors

MEC has succeeded to attract large citizen membership and built solid cooperation with several municipalities in Crete. MEC's success to attract more than 600 members in less than 4 years was in part based on the favourable legislative framework in Greece, which enables virtual net-metering scheme on a 3-year basis. This enabled MEC to successfully develop almost 1,500 kW of community owned solar PV.

ZEZ, on the other hand, has a track record of developing donation-based and investment-based energy projects, but only on a small scale. ZEZ developed two 30 kW solar PV, financed by 90 citizens. Still, considering low energy prices and lack of any supporting mechanisms, implementation of those projects would not be economically viable without the support from grants. The interest from citizens to invest in the community energy projects is significant, but ZEZ struggles to develop new projects, mostly due to legislative barriers and lack of supporting mechanisms.

In the case of the city-led pilot (Bistrita), there are no existing energy communities at the moment, but Bistrita is planning to take actions to engage and motivate local groups to take part of municipal energy projects.

Technical factors

Greece has one of the most favourable collective self-consumption schemes in the EU. In Greece, energy produced in the community energy project are shared among community members and netted on a 3-year basis, which makes such projects economically feasible. However, existing framework was introduced before the adoption of the recent EU provisions, so it is not fully compliant with them and the transposition process is still in progress.

Such scheme is not available in Croatia, where virtual net metering is not yet implemented. Croatia has incorporated provisions regarding energy communities into its national legislation, and has also established guidelines for the registration of energy communities. However, despite implementing certain requirements for an effective framework, the government has yet to conduct an evaluation of potential barriers to the development of RECs, and has not provided a detailed outline of the framework's components. Certain provisions within the new law, such as restrictions on geographic location for activities and membership, and the registration and licensing process, pose significant challenges for energy communities, and no support schemes have been established. Although regulations for energy sharing exist, they lack incentives, and due to other obstacles related to registration and licensing, this activity remains unfeasible.



In Romania, the majority of relevant legislation was taken directly from the provisions of the Electricity Directive, without providing additional specifics. Thus, virtual net-metering or collective self-consumption schemes are not yet available since relevant framework in large part copy-pastes the text of the EU Directives, without providing any technical details needed for the implementation.

Environmental factors

Still, this assessment showed what has been repeatedly demonstrated, that the role of local municipality is critical in creating enabling framework and opportunities for early-stage energy communities.

In case of ZEZ, municipality role was critical for successful development of first Croatian community energy projects (Krizevci). The same applies for MEC, where municipalities are actual members of the energy community. This results in a great difference in business models of both organisations and day to day management. Over the years, ZEZ grew into expert organisation focused on promotion, education, advocacy and social and technical innovation projects. This makes ZEZ not perfectly suitable for becoming large energy community with many members. In comparison, MEC organisational structure and business model is more suitable for accepting large number of members, including municipalities.

In terms of capacity for implementation of community energy projects, there are great differences among pilots, with MEC having only one full time staff and ZEZ having fourteen. Still, ZEZ's income almost exclusively comes from grant-based projects and consultancy services they provide and not from community energy projects. Still, ZEZ lacks opportunities for development commercial community energy projects due to lack of supporting mechanisms for energy communities on a national and local level, clear legislative framework and low electricity prices. On the other hand, MEC is relying more on volunteer work which has its limitations, but MEC as an organisation is more focused on developing renewable energy projects, while ZEZ takes a broader role in scientific and innovation projects and activities.

Both ZEZ and MEC put a lot of effort in awareness raising and capacity building activities, with ZEZ present in larger area, while MEC is focused on a narrower area (Crete).

Bistrita, as a city-led pilot, has the capacity and mandate to plan large scale renovation projects on public buildings, but needs support for community engagement. Bistrita will thus reach out and start discussions with an informal group of citizens. The goal would be to map the citizen's interest and potential to establish formal energy communities in the near future. Cooperativa de Energia will provide assistance to Bistrita in this process.

Although there are legal, cultural and political differences between the pilots, it seems that citizen's interest in participation and financing community energy projects is greater than available opportunities for citizens and energy communities.

Following is a table with self-assessed survey for three pilot organisations.

Table 7. Aggregate table for three pilot organisations.



1 - Community Factors	ZEZ	MEC	Bistrita Municipality
Defined vision/mission	Yes	Yes	Yes
Members list	Yes	Yes	No
Governance Rules (Inclusive, Transparent, Specific)	Yes	Yes	No
Is your governing body gender balanced ?	Yes	No	-
Do you have external communication channels ?	Yes	Yes	No
Do you have paid staff?	Yes	Yes	Yes
Do you have a member's feedback mechanism?	Yes	Yes	No
Is feedback documented?	Yes	Yes	No
Do you transfer knowledge to other initiatives ?	Yes	Yes	No
2 - Technical Factors			
Developed Business model	Yes	No	No
Do you hold the necessary permits or licences to perform your main service.	Yes	Yes	Yes
Registered (legal form)	Yes	Yes	No
Financial breakeven point	Yes	No	No
Offering multiple services	Yes	Yes	No
Available capital or assets	Yes	Yes	No
Do you know your cash flow ratio and the internal rate of return of your projects?	Yes	No	Yes
Is your debt ratio positive ?	Yes	Yes	Yes
3 - Environmental Factors			
Relationship with the local authority	Yes	Yes	NA
Administrative barriers	Yes	No	No
Regular tracking of risks in your energy community (Risk Registry)	Yes	Yes	No
Financial and business support	Yes	No	NA
Do you know of supportive networks for energy communities?	Yes	Yes	No

