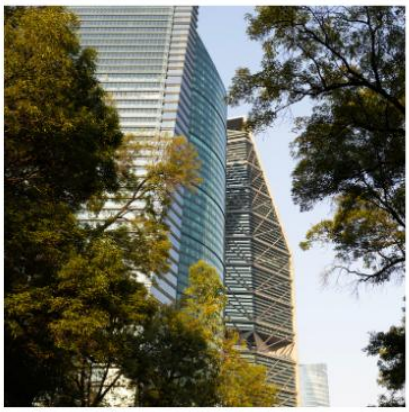
PROSPECT



Learning Handbook on Energy Communities

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About the project

PROSPECT aims to strengthen the capacity of local and regional authorities (LRAs) across Europe to implement sustainable energy and climate actions by reducing reliance on public funding and increasing the use of innovative financing schemes (e.g., one-stop-shops, energy agencies, energy communities). The project offers a peer-to-peer Capacity Building Programme (CBP) tailored to the needs and time constraints of LRAs, available in multiple languages and structured in adaptable learning modules. Through large-scale outreach, including very small and remote LRAs, PROSPECT CUBE acts as an entry point to EU programmes and financing opportunities for authorities with limited experience in the field.

PROSPECT CUBE builds upon two successful Horizon 2020 initiatives: PROSPECT (2017–2020) and PROSPECT+ (2022–2025).

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List of abbreviations

Abbreviation	Description
AESS	Agenzia per l'Energia e lo Sviluppo Sostenibile (Energy and Sustainable Development Agency)
CBP	Capacity-Building Programme
CER	The Alto Vicentino Renewable Energy Community
CINEA	European Climate, Infrastructure and Environment Executive Agency
EE	Energy Efficiency
EIB	European Investment Bank
EPC	Energy Performance Contracting
EU	European Union
GSE	Gestore dei Servizi Energetici (Italian Energy Services Manager)
IDEVA	Agencia de Innovación y Desarrollo Económico de Valladolid (Agency for Innovation and Economic Development of Valladolid)
LRA	Local and Regional Authority
NGO	Non-Governmental Organisation
P2P	Peer-to-Peer
PNRR	Piano Nazionale di Ripresa e Resilienza (Italy's National Recovery and Resilience Plan)
PSOE	Prague Renewable Energy Community
PV	Photovoltaic
RES	Renewable Energy Sources
SEMMO	Sdružení energetických manažerů měst a obcí (Association of Local Energy Managers)
SME	Small and Medium-sized Enterprise

1. Introduction

Local and regional authorities across Europe are expected to accelerate the implementation of the energy transition while operating under significant financial, administrative and political constraints. Delivering renewable energy projects, improving energy efficiency and addressing energy poverty increasingly requires collaboration between public authorities, citizens and local economic actors.

In this context, energy communities have emerged as an important enabling model that combines citizen participation, local ownership and renewable energy development. By organising citizens, municipalities and local businesses around shared energy projects, energy communities can mobilise investment, build social acceptance and support the local implementation of climate policies.

Energy communities, therefore, represent more than a technical solution for producing renewable energy. They introduce new governance models, new ownership structures and new forms of participation in the energy system. For local and regional authorities, they can act as partners, facilitators or co-investors in local energy projects.

1.1. Purpose of this handbook

This handbook introduces energy communities as an enabling mechanism for implementing local and regional energy and climate actions.

Its objective is to help public authorities understand:

- what energy communities are and how they function,
- when and where they can be used,
- what benefits they may generate for local and regional authorities
- what barriers typically arise in their development, and
- which factors contribute to their successful implementation.

The handbook does not aim to provide an exhaustive legal or technical guide to establishing energy communities. Instead, it provides a practical overview that helps practitioners recognise their potential and understand how they can be integrated into broader local energy transition strategies

1.2. Target audience

This handbook is primarily intended for local and regional authorities (LRAs) seeking innovative governance models to support renewable energy deployment, citizen engagement and local investment.

It is also relevant for:

- Energy agencies supporting municipalities in climate and energy planning,
- Policy officers working on citizen participation and energy transition,
- Energy community initiatives and cooperatives,
- NGOs and intermediary organisations facilitating local energy projects,
- Researchers and practitioners working on community energy.

1.3. How to use this handbook

This handbook follows a flexible learning structure that moves from conceptual explanations to practical insights. Readers may use it to:

- understand the role of energy communities in the energy transition,
- identify contexts in which they can support local policies,
- learn from real-world examples of existing initiatives,
- anticipate barriers and enabling conditions for implementation.

Sections may be consulted independently depending on the reader's needs or stage of engagement with energy communities.

2. Understanding Energy Communities as an Enabler

2.1. Definition & key characteristics

The concept of energy communities is not new. The first energy communities took the form of energy cooperatives in the 1920s in Italy, Spain and Portugal. They usually appeared in remote rural areas not connected to the electricity grid, and where citizens decided to manage production and supply themselves. Since the 1980s, energy communities have mainly dealt with electricity production from renewable sources. As of 2026, Rescoop.eu, the European Federation of Energy Communities, counted 2500 Members, but the number of energy communities in Europe is much bigger, close to 8000, according to the European Commission (2026).

In 2019, the EU formally recognised these actors through two definitions. A first definition of renewable energy community comes from the Renewable Energy Directive, and a second definition comes from the Electricity Directive. The following table distinguishes these two models:

Table 1 Characteristics of Renewable Energy Community and Citizen Energy Community

Citizen Energy Community (CEC)	Renewable Energy Community (REC)
Focus on electricity	Not limited to electricity, may also include heating & cooling, storage, renovation, and other energy services.
No strict proximity requirement	Local proximity requirement for members/shareholders
Open to various types of entities, but effective control must remain with citizens, SMEs, or municipalities	Participation limited to citizens, SMEs, and municipalities located in the proximity of the project.
Can operate across the electricity market value chain.	Focus on renewable energy production, consumption, sharing, storage, and related services.
More market-oriented, potentially higher risk of corporate capture.	Stronger emphasis on collective, local and sustainability-driven values.

EU provisions also include the establishment of an "enabling framework," aimed at facilitating the emergence and scaling of energy communities.

The development of energy communities' activities, expanding the scope of their activities beyond electricity production, has co-evolved in parallel to their formal recognition through EU law, which has led to various forms of support from EU-funded projects. Indeed, since 2019, several EU-funded projects have supported energy communities in developing activities in the renovation sector (Citizen-Led Renovation I, II and III), in the heating and cooling sector (ConnectHeat). The institutionalisation of energy communities has also led them to work more closely with industrial parks, as shown by the ENERGIZE project. In the latter setting, energy may be shared, either collectively or as the result of an agreement between active and final consumers, as stated in EU provisions on energy sharing[1]. The REPowerEU Plan put forward the shared political objective of achieving one energy community per municipality with a population of more than 10 000 by 2025, a target that has not yet been achieved as of 2026. Ultimately, it is expected that the Citizen Energy Package will ensure that vulnerable consumers benefit from energy communities.

In a nutshell, defining energy communities is a difficult exercise as they continuously reinvent themselves by embracing new activities and new actors. Bauwens et al. (2022) analysed this diversity and identified that 183 definitions have been used to refer to "community energy, energy communities, and related notions" (p. 13). Comprehensively defining them is an almost impossible task; providing a concise definition that considers shared characteristics certainly makes more sense. In that sense, Brummer (2018) summarises this definition as follows: "According to the notions extracted from the literature, most researchers would agree that the community energy concept includes two main aspects: (1) An energy system that is more sustainable in its technological aspects, and (2) an energy system that allows more participation and democratic control".

[1] See article 16 of Directive 2019/944 and article 15a of Directive 2024/1711

2.2. When and where energy communities can be used

In this section, we present a typical REC journey. However, we should first underline that there is no such thing as a typical REC journey. What we try to underline are the most common steps in a REC project, and the most common shared patterns.

Most RECs emerge in local contexts around an electricity production project. The electricity is usually produced by photovoltaic or wind turbines, although some other projects may rely on other renewable sources such as small hydroelectric power plants. Choosing the right technology is the first important step. This choice is influenced by natural conditions such as topography, climate, population density (Van de Graaf and Sovacool, 2020), but also by social conditions such as local acceptance or social valorisation of local places. It is also influenced by financial incentives and permitting processes. Once this choice has been made and the energy community has emerged, then it may develop further by attracting new members, expanding its activities to new territories, and developing new activities. These new activities encompass energy sharing, flexibility, storage, building renovation, or specific attention to vulnerable populations, and many more. Typical members of a REC include mainly citizens. They may also include municipalities, SMEs, local associations and NGOs.

For more details, we recommend the following article from Bauwens, Vaskelainen and Frenken (2022), who describe the different phases of the upscaling of actors like RECs.

In terms of membership, RECs are open to all citizens. If the REC is built as a cooperative, then any citizen can become a member of the renewable energy cooperative. Becoming a cooperative member requires paying a membership fee, which is fixed by the cooperative members. It may range from a few euros to a few hundred euros. Other energy community models are not based on the cooperative model, and citizens may then join without paying fees. However, they may not have the same rights, obligations, or ownership models as in a cooperative model. More information may be found on the website of Rescoop.eu, the European Federation of Energy Communities: https://www.rescoop.eu/the-rescoop-model

The following three examples of RECs illustrate the typical roles and activities of energy communities.

2.2.1. Renewable electricity production

A common type of activity for a REC is to produce and sell electricity, as shown by the REC Courant d'Air in Belgium. Courant d'Air is a renewable energy community (REC) that emerged in Waimes in 2009, originating from a wind-turbine park project initiated in 2004 by the company Mobilae. As plans for the wind farm near the village of Chivremont took shape, local citizens organised themselves to participate

directly in the project. This led to the creation of Courant d'Air as a cooperative structure, enabling residents to invest in and co-own the turbines.

The wind park was ultimately built with five turbines and a shared ownership model: 40% for Mobilae, 40% for Courant d'Air, and 20% for another REC, Ecopower. From the outset, Courant d'Air's core activity has been the production of renewable electricity at scale. The cooperative feeds the electricity generated into the electricity grid. Revenues are derived from the sale of this electricity on the market, making the project economically viable. Through this model, Courant d'Air demonstrates how a citizen-led energy community can act as an electricity producer while generating financial returns that can be reinvested in other emerging energy communities.

2.2.2. Energy sharing and social inclusion

A more recent area of activity for RECs is energy sharing, which is increasingly being used to support citizens and vulnerable consumers. Two examples from Porto, (northern Portugal), highlight this potential: the ENNO (Energias do Norte) and Agra do Amial energy community projects demonstrate how shared renewable energy can provide vulnerable groups with access to stable and affordable electricity.

ENNO is a newly established REC that unites 28 public how and institutional entities in the Norte region of Portugal. ENNO is the country's largest energy community, operating under an innovative model for producing and sharing renewable electricity from waste-to-energy processes. ENNO's structure enables collective self-consumption and energy sharing across city councils, utilities, housing companies, as well as a hospital and a university, offering members tariff stability and lower energy costs with reduced exposure to market price volatility. Crucially, ENNO was created with a strong social mission. In practice, this means that a share of the community's energy benefits is directed to vulnerable populations. For example, some founding members are social housing managing entities (such as Porto's Domus Social) and charity institutions, ensuring that low-income families and disadvantaged groups can benefit from the affordable clean energy.

The Agra do Amial Renewable Energy Community is a local project in the city of Porto that directly targets energy poverty in a social housing estate. Implemented by the Porto Municipality and funded through public grants, this initiative installs photovoltaic panels on the rooftops of municipal apartment buildings and shares the generated solar energy among the low-income residents. Operational since mid-2024, the community now links 83 housing units and a local primary school in a collective self-consumption scheme. During its first year of operation, Agra do Amial produced about 135 MWh of solar electricity, which was

shared in real-time among the participants. By using solar power, the 83 participating families significantly reduced their reliance on grid electricity, with data showing an average 34% reduction in electricity bills.

Both ENNO and Agra do Amial illustrate how organising an energy community around energy sharing can simultaneously promote renewable energy and social justice. In both cases, vulnerable groups are given access to the clean energy produced, either through dedicated programmes or through the inclusion of social housing residents in the community.

2.2.3. Industrial parks and local competitiveness

Energy communities can also play an important role in industrial parks and business clusters, where multiple companies are located in the same area and often face similar energy challenges. In these contexts, the energy community model enables businesses to collaborate on the production, management and consumption of renewable energy, thereby improving both economic and environmental performance.

Experiences from the ENERGIZE project [2] illustrate how energy communities can support the transformation of industrial areas into more sustainable and competitive energy ecosystems. Within the project, several pilot initiatives explore how companies located in the same industrial park can jointly invest in renewable energy infrastructure, such as rooftop photovoltaic installations, shared energy storage, or local energy management platforms.

By pooling resources and coordinating their energy use, participating companies can reduce investment costs, optimise energy consumption patterns and increase the share of locally produced renewable electricity. In some cases, companies may also engage in energy sharing arrangements, allowing surplus electricity produced by one facility to be used by another within the same industrial area.

For local and regional authorities, supporting such initiatives can strengthen the competitiveness of local businesses while simultaneously advancing climate and energy targets. Industrial energy communities can lower energy costs for companies, improve energy security, and contribute to the decarbonisation of industrial activities. At the same time, they encourage collaboration between businesses, municipalities and energy actors, fostering innovation and strengthening local economic resilience. Ultimately, these emerging models demonstrate that energy communities are not limited to residential or citizen-led initiatives but can also function as strategic tools for sustainable industrial development at the local level.

[2] https://www.energizecommunity.eu/

2.3. Why energy communities matter

Various actors benefit from RECs in different ways. While in this section, we focus on LRAs, we first consider the broader benefits for other actors.

First, citizens benefit from energy communities in several ways. They may own shares in energy infrastructure, benefit from lower energy costs, and gain a greater sense of agency by actively participating in the energy transition. In this way, they contribute to the transformation of society and the economy and help shape pathways towards energy democracy and energy justice.

Second, the EU also benefits from RECs, as they represent a tool addressing the democratic deficit that has long been associated with the EU integration process. The energy sector has traditionally been perceived as closed, opaque, non-transparent, and distant from citizens. By legally recognising and actively promoting RECs, the EU can strengthen its bonds with citizens and support the broader objective of bringing the European projects closer to them. In addition, by stimulating citizen investment, RECs may help the EU close the environmental financing gap, estimated at around 180 billion euros per year.

Third, when they find a common ground to work together, RECs may help energy utilities increase the social acceptance of renewable energy sources. RECs ensure that renewable energy projects are grounded in local communities. However, RECs do not have the capacity to overcome all forms of opposition to renewable energy, especially from well-structured groups that are ready to oppose renewable energy projects regardless of their ownership.

Some benefits are general in nature and not linked to a specific policy level. These can be summarised as follows:

1. Supporting collective institutions, such as energy communities, leads to the redistribution of agency in the energy system by turning passive consumers into co-owners, decision-makers, and co-investors, thereby democratizing control over infrastructure and value creation. Energy communities also help retain economic value within communities, strengthening local resilience and building political support for long-term decarbonization. In this way, energy communities do not merely deploy clean technologies; they also shape power relations, market structures, and social norms in line with the objectives of a transformative energy transition.
2. Supporting energy communities means encouraging a more democratic energy system where citizens are also involved, alongside traditional energy actors. Supporting democratic values in a

world that is increasingly driven by populism, which is built on the narrative that democratic values are weak, is also a way to protect current liberal democracies.

3. Supporting energy communities contributes to energy justice, as citizens can own the renewable energy infrastructures that are built in their surroundings instead of only having to accommodate them and bear their impacts.
4. Supporting energy communities is encouraging energy literacy, as citizens learn about the world of renewable energy, electricity, flexibility, energy efficiency, and many other activities developed by energy communities.
5. Supporting energy communities promotes transformative social innovation. Indeed, energy communities are changing who makes decisions, who owns energy infrastructure, and how value is created. They challenge, modify, and replace dominant institutions and practices. In doing so, they contribute to a redistribution of power in the energy sector and generate alternative narratives about how the energy system can be organised. Public support enables their diffusion and embedding, thereby increasing their transformative capacity. Find out more about the transformative social innovation aspects of these actors with the TRANSIT project.

The figure below illustrates how these various normative dimensions contribute to the development of a transformative energy system. This system presents itself as an alternative to the traditional energy system, made of dominating, carbon-intensive and opaque energy actors. The latter phenomenon is called “deep incumbency” (Johnstone et al., 2017) and is defined as a situation “where state interests become so enmeshed with those of incumbent firms that it becomes difficult to conceptualise a functional regime in the absence of those companies.” (Brisbois, 2019, p. 151).

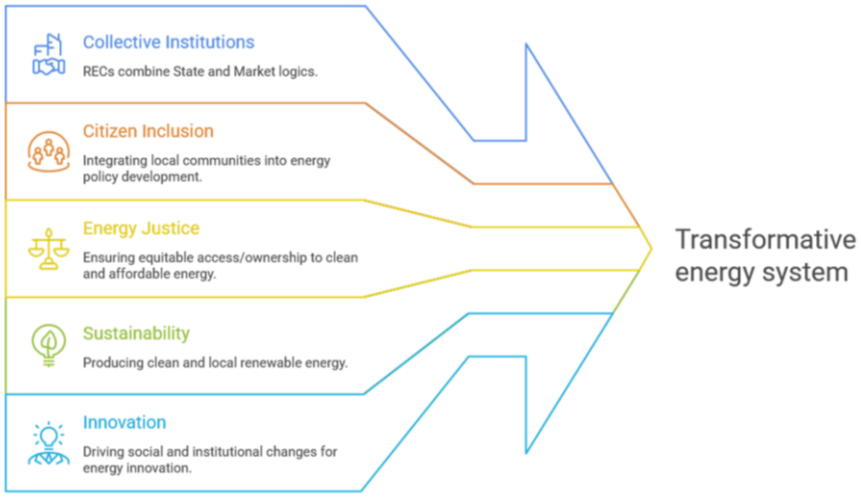

Figure 1. Why we need renewable energy communities
Source: Loïc Cobut - Author's own elaboration.

2.4. Benefits for local and regional authorities

We now focus on LRAs, who may benefit from energy communities in different ways. B The following section shows that these benefits can be tangible and material.

1. Attract local energy knowledge**,** which is usually scarce in remote and rural areas. With the right cooperation model, municipalities can benefit from the expertise of energy community members, for example, in installing smart meters or in understanding electricity-related data. To illustrate this benefit, we refer again to the case of the REC Courant d'Air in Waimes (Belgium). The REC initially faced difficulties in paying the municipal tax on wind turbines that any energy operator must pay when owning such infrastructure. Instead, the municipality reached an agreement with the REC, as it was looking for electricity experts. The two parties agreed to cooperate, and the REC received several missions. Those missions included the installation of PV panels on a municipality building, education activities in local schools, replacing public and school luminaires with LED bulbs, installation of a smart metering system for the municipality's heating system, and analysis of data collected by this system. In the period between 2012 and 2021, the municipality had only one employee working at 25% capacity on environmental, climate and energy matters. The municipality lacked sufficient staff to deal with energy-related matters. In this context, the REC provided support to the responsible employee and helped in the preparation of the SECAP, right after the Municipality signed the Covenant of Mayors in 2016. The REC supported the municipality in the design and implementation of the SECAP thanks to its expertise and network.

1. Support investment in local renewable energy projects and help municipalities respect their climate and energy objectives. Energy communities contribute to decarbonisation by expanding renewable energy generation and helping bridge the investment gap required to support long-term climate targets and limit global warming below 2°C.
2. Foster local economy, as energy communities ensure that the benefits of renewable energy production remain locally. For example, in Centre Val de Loire, a REC created a power purchase agreement with several SMEs. Thanks to this agreement, these SMEs not only benefit from sustainable and local electricity but also from a fixed tariff, hence long-term price stability, local employment, and increased energy independence. When RECs are active in the renovation sector, they can also contribute to the local economy as they work with local renovation companies, as examples from the Citizen-Led Renovation project demonstrate. The same logic also applies to energy communities active in the heating and cooling sector, which work with local and regional

companies to develop heating and cooling infrastructure, as demonstrated by the ConnectHeat project.

3. Build trust with citizens, which is not an easy task, especially in the current context of post-truth politics and increased polarisation (Dryzek et al., 2019). Renewable energy communities work directly with renewable energy sources, which in themselves are a source of polarisation and resistance. This may occur when citizens do not feel like their interests are being represented in the implementation of the energy transition (Fitzgerald and Palle, 2026), or because they belong to well-established networks opposing renewable energy sources, which usually crystallise around the rejection of wind turbines. In this context, energy communities will not turn long-term wind turbine opposition movements into groups of citizens that fully trust wind power. However, energy communities can increase trust in renewable energy and in local institutions. This may occur when citizens look for greater transparency and active participation in the implementation of the energy transition (Schmid et al, 2020). Energy communities can also increase trust when renewable energy becomes a vehicle for lower energy bills and long-term price stability, as shown by the examples from Porto and Centre Val de Loire (see above).
4. Support vulnerable consumers through tailored energy sharing schemes, as illustrated by the examples from Porto described above.

3. Challenges and benefits

3.1. Common barriers

RECs represent great potential. They appear to offer solutions to several of the challenges currently faced, including advancing the energy transition, supporting local economic development, strengthening social bonds in local communities, and reducing resistance to renewable energy projects. One may therefore ask why their deployment remains limited. Despite their potential, RECs still represent only a marginal share of the energy system, accounting for around 1% of electricity production.

The answer lies in the many obstacles RECs face to emerge as new entrants in the energy sector. These obstacles are listed below:

- Lack of technical capacity, as it can be challenging for emerging RECs to determine which technologies to use, in which territory, and where to procure them. In remote areas, it may also be difficult to find installers.
- Lack of financial capacity, as emerging RECs may find it challenging to identify an appropriate financial model, depending on regional and national constraints, as well as local conditions. In some places, the cooperative model is often used, which requires finding cooperative members to fund the project. However, other financial models are also emerging, for example, based on crowdfunding or long-term power-purchase agreements.
- Lack of political support, as it is difficult for a REC to emerge and develop in a local political and institutional environment that is not supportive. With adequate political support, a REC can easily enter local networks, benefit from the municipal administration's knowledge, and eventually have its project activities promoted through municipal information channels. In some municipalities, local political actors may even oppose REC projects for electoral logic, as climate-related actions become increasingly polarised.
- Weak transposition of EU provisions, as in some Member States like Croatia, there is still no legal entity for RECs, or for specific activities like energy sharing. For updates on the implementation of these provisions, we recommend visiting the Rescoop tracker and the Citizen Energy Advisory Hub.

The scientific literature on RECs' barriers is rich and expanding. The two following research articles offer complementary insights. The first one, by Mignon and Rüdinger (2016?), looks at the literature on technological innovation systems to analyse obstacles to the "deployment of cooperative projects within renewable electricity production" in France, Germany, and Sweden. More specifically, the authors refer to a theoretical typology of systemic conditions affecting the deployment of renewable energy technologies,

including market structure, infrastructures, hard and soft institutions, interactions between actors and capabilities (Mignon and Rüdinger, 2016, p.481). The second study, from Brummer (2018), compares community energy barriers in the United Kingdom, Germany, and the United States. While Brummer underlines that barriers have "country-specific circumstances", he distinguishes six categories of barriers: organisational structures/legal framework/planning requirements, discrimination from incumbents, lack of institutional and political support, scepticism against renewable energy/NIMBY opposition, lack of resources, and saturation effect.

3.2. Success factors

3.2.1. Financing

Financing a Renewable Energy Community is not a matter of securing a single grant or loan. It requires a structured funding strategy that connects project design, governance, risk allocation and long-term revenue. Experience from industrial and citizen-led communities across Europe shows that projects succeed financially when capital needs, operational costs and revenue streams are treated as one coherent system rather than isolated elements.

A credible financing strategy starts with precision. The community must define what is being built or operated and quantify the full investment required. Capital expenditure should cover renewable generation assets, storage, grid connections, engineering works, metering and energy management systems, permits and advisory costs. Operational expenditure must be projected over a realistic time horizon, including maintenance, insurance, monitoring, management, data and billing services, and network charges, and the costs associated with energy sharing arrangements.

Equally important is a transparent revenue model. Typical income sources include internal consumption savings, sale of surplus electricity to the grid, EV charging services, leasing arrangements or member contributions. Financial projections should demonstrate that these revenues can cover operational costs and debt service with a sufficient margin.

Real-world projects underline the value of sensitivity analysis. Electricity price volatility, lower-than-expected energy production or higher maintenance costs can quickly erode margins. A sound financial plan, therefore, tests baseline, downside and optimistic scenarios before approaching financiers.

Public grants and subsidised loans often provide the foundation for early-stage investment, particularly when upfront costs are significant. These instruments are most effective during the feasibility and construction phases, when capital intensity is high, and revenues have not yet materialised.

In Italy, the Renewable Energy Communities Decree combines non-repayable capital grants for smaller municipalities with a nationwide tariff incentive for shared renewable production. This dual approach strengthens both the investment case and long-term revenue stability. In Catalonia, preferential loans from public institutions such as the Institut Català de Finances have enabled energy communities and companies to finance projects over extended periods with manageable repayment conditions.

However, public support rarely covers the total investment. Projects that rely exclusively on grants often struggle to scale. The lesson from practice is clear: public funding should act as leverage, not as the sole pillar of the financial structure.

Member contributions, whether through share capital, entrance fees or structured equity participation, are a decisive success factor. They reduce the need for borrowing, improve the balance sheet and demonstrate commitment to external lenders.

Communities structured as cooperatives frequently mobilise internal capital effectively. The cooperative model, supported at the European level by REScoop.eu, has shown that collective ownership can align long-term incentives and facilitate reinvestment of returns. From a financing perspective, member equity signals stability and shared risk, which improves access to both grants and loans.

Where governance allows, crowdfunding or broader citizen participation can diversify capital sources and reinforce local legitimacy, though such instruments must be carefully designed to ensure regulatory compliance and financial transparency.

For industrial-scale projects, debt financing is often indispensable. Subsidised loans from public banks or green finance facilities typically offer longer maturities and lower interest rates than commercial credit. The repayment schedule must be calibrated to projected income, ensuring that operational revenues cover both running costs and loan servicing obligations.

Successful communities combine equity, grants and debt in a layered funding mix. The precise proportions depend on regulatory context, project size and risk tolerance, but diversification consistently improves resilience.

Establishing a revolving fund is a proven mechanism for strengthening resilience. By allocating a portion of annual surplus to future maintenance, upgrades or expansion, the community reduces reliance on new external funding and builds internal financial capacity. European experience demonstrates that projects with structured reinvestment policies are better positioned to scale and replicate.

Financing is inseparable from governance. The chosen legal form, whether cooperative, consortium or dedicated project entity, affects eligibility for funding programmes, allocation of risk and investor confidence. Clear decision-making procedures, transparent financial flows and documented member commitments are essential.

A comprehensive risk mitigation plan should address regulatory change, technology failure, partner withdrawal and price volatility. Insurance mechanisms, diversified revenue sources and contractual safeguards can reduce exposure. Financiers consistently favour communities that present realistic projections alongside credible contingency planning.

Financial success in a Renewable Energy Community (REC) rests on preparation, diversification and disciplined governance. A project becomes bankable when capital expenditure is clearly defined, operational costs are realistically projected, revenue streams are secured, and risks are openly managed. Public support, member equity and structured debt each play a role, but none is sufficient in isolation. When combined within a coherent strategy, they transform collective ambition into durable infrastructure.

3.2.2. Policy and regulatory support

The development of energy communities depends strongly on the policy and regulatory framework in which they operate. While the European Union has formally recognised energy communities as key actors in the energy transition, their practical implementation is determined by national and regional legislation, licensing systems and administrative procedures.

At the European level, the concepts of energy communities were introduced through the Renewable Energy Directive [3] (EU) 2018/2001 and the Internal Electricity Market Directive [4] (EU) 2019/944. These directives define two main types of energy communities: Renewable Energy Communities (RECs) and Citizen Energy Communities (CECs). Both are required to operate as legal entities under national law, meaning that an energy community must adopt a recognised legal structure such as a cooperative, association or limited company to operate legally.

The directives also establish core principles for energy communities. Participation must be open and voluntary, governance should remain under the control of members located near the project, and the primary objective should be to generate environmental, economic or social benefits for the community

[3] https://energy.ec.europa.eu/topics/renewable-energy/renewable-energy-directive-targets-and-rules/renewable-energy-directive_en

[4] https://eur-lex.europa.eu/eli/dir/2019/944/oj/eng

rather than maximise financial profit. These principles ensure that energy communities remain locally rooted and socially oriented actors within the energy system.

However, the implementation of these EU directives varies significantly between Member States, which means that the regulatory opportunities for energy communities differ across Europe. Each country determines which legal forms can be used, what administrative procedures are required, and how activities such as electricity generation, energy sharing or supply are regulated. For example, in Belgium, energy communities must be registered with the regional energy regulator Brugel, which reviews the statutes and operational framework of the community before it can begin activities.

Because of these differences, choosing the appropriate legal form is one of the most important early decisions when establishing an energy community. The legal form determines several practical aspects of the project, including governance arrangements, liability of members, the ability to raise capital, administrative costs and the range of energy activities the community is legally allowed to perform.

In practice, three legal models are most frequently used. Cooperatives are widely adopted when communities require significant member investment and democratic governance, allowing members to purchase shares and participate in decision-making. Associations or non-profit organisations are often easier and cheaper to establish and may be suitable for smaller or early-stage initiatives. In some contexts, limited companies or hybrid public–private structures are used when municipalities and businesses collaborate on larger commercial projects.

Experiences from the ENERGIZE Project highlight how regulatory frameworks influence the development of industrial energy communities. Pilot initiatives in regions such as Catalonia (Spain), Upper Austria (Austria), the Zlín region (Czechia) and Valsesia (Italy) adopted different legal forms depending on national regulations and project objectives. For example, the Catalonia pilot established a service cooperative, enabling businesses within an industrial estate to jointly invest in renewable energy projects. In contrast, the Czech pilot adopted a registered association, which provided a simpler and lower-cost entry point while the national regulatory framework continues to evolve.

These experiences show that no single legal structure is suitable in all contexts. Instead, the appropriate choice depends on the scale of the project, the type of members involved (citizens, companies, municipalities), and the activities the community intends to carry out, such as generation, collective self-consumption, energy sharing or energy services.

For local and regional authorities seeking to support energy communities, policy support can take several forms. Authorities can facilitate dialogue with regulators and grid operators, provide guidance on legal structures, and connect emerging communities with national federations or specialised advisory services. Many countries are also developing One-Stop Shop support structures that provide information, templates, legal advice and administrative assistance for energy community initiatives.

A clear and supportive regulatory environment therefore plays a critical role in enabling energy communities to emerge and scale. When legal frameworks are well defined and administrative procedures are accessible, communities, whether citizen-led or based in industrial areas, can more easily mobilise investment, organise governance structures and contribute to local energy transition goals.

3.2.3. Institutional setup and capacity

One tool that increasingly appears as a key to supporting energy communities is called One-Stop-Shop (OSS). These structures are already present in the renovation sector, as the Energy Performance of Buildings Directive (EPBD) recognises them in Article 18. They are framed as facilitation tools aimed at providing technical assistance to households, SMEs and public bodies. A similar tool is also included in the Energy Efficiency Directive, in its Article 22. Besides these OSS for building renovation and energy efficiency, One-Stop Shops dedicated to energy communities have also emerged. However, OSSs for energy communities are not yet formally recognised in EU legislation.

There are currently 136 One-Stop Shops for energy communities in 23 Member States (85 of them in Spain), and this number is rapidly increasing. Among the Member States where such structures are not yet in place, Latvia and Poland are planning such One-Stop Shops as part of their National Energy Climate Plans, while Slovenia and Sweden are running pilot initiatives as part of the EU Peers programme. Overall, these countries still have limited OSS coverage, with most activities at an early stage of development.

In this context, LRAs are well placed to support the establishment of One-Stop Shops for energy communities. These structures can provide a wide range of services, including information, knowledge and know-how sharing; stakeholder engagement; financial, legal, IT, administrative and technical support; capacity building; technology-neutral advice; feasibility studies; provision of site-specific knowledge; and trust-building with local communities.

To maximise their effectiveness, however, OSSs should tailor these services to the specific needs and maturity level of each REC, with support requirements may vary throughout the lifecycle of an energy community, from its initial emergence to its expansion and long-term operation. Consequently, OSSs need

to develop integrated service offerings that address all aspects of REC creation and development, as illustrated in the following figure.

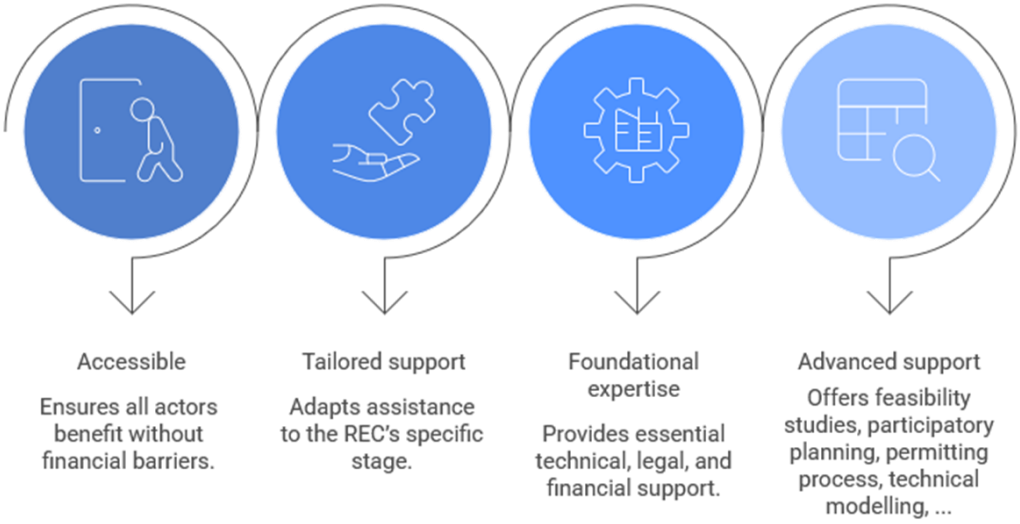

Figure 2. The characteristics of an ideal OSS for energy community
Source: Author's own elaboration.

Reading support: These characteristics ensure that a One-Stop Shop provides both the broad, foundational services and the specialised, in-depth support required for successful project implementation and RECs' upscaling.

For OSS to deliver, they must be driven by neutrality and embedded within long-term territorial strategies. Publicly led One-Stop Shops are arguably uniquely positioned to ensure inclusiveness, continuity, and trust, while also strengthening institutional capacity and creating synergies with broader energy, housing, and social policies. This model offers a reliable and equitable pathway to empower RECs.

LRAs can act as both leaders and mediators, facilitating dialogue and cooperation between RECs, public authorities, energy agencies, SMEs, and citizens, building trust and driving regional energy transformation forward. LRAs may drive the development of OSS, but they cannot overcome the many challenges alone. While LRAs bring unmatched knowledge of local contexts, the EU can play an important role in reducing administrative and legal barriers through legislation, guidance, and funding instruments, even though the implementation of directives ultimately depends on Member States.

4. Case studies

This section presents three case studies illustrating how crowdfunding has been applied to support local and regional energy, climate, and sustainability projects. The examples reflect different crowdfunding models and roles played by LRAs across diverse territorial contexts, highlighting practical approaches, opportunities, and lessons for replication.

4.1. The Alto Vicentino Renewable Energy Community - CER (Italy)

GENERAL CONTEXT. The Alto Vicentino Renewable Energy Community (CER) was established in the Veneto Region, Italy, as a multi-municipality initiative involving municipalities, citizens, and SMEs across an area of approximately 100,000 inhabitants. The initiative emerged through the cooperation of 16 municipalities and aims to create a shared platform supporting local renewable energy production and energy sharing at regional scale.

HOW THE ENERGY COMMUNITY MODEL OPERATES. The initiative combines public participation, citizen engagement, and diversified financing sources within a coordinated regional governance structure. The CER integrates photovoltaic installations on public buildings together with citizen-owned systems, supported through municipal budgets, national PNRR funding, bank foundation contributions, and GSE incentive tariffs linked to shared renewable energy.

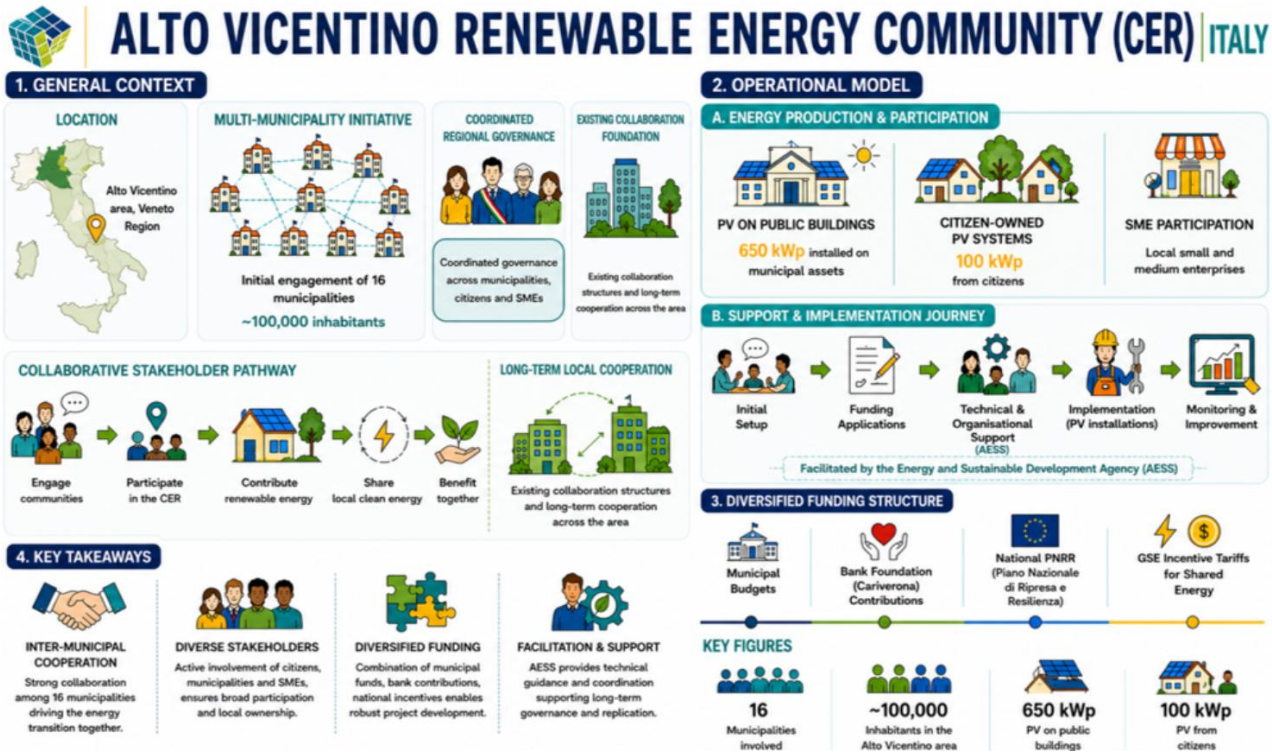

Figure 3. The CER energy community (Italy)

The Energy and Sustainable Development Agency (AESS) played an active facilitation and technical support role throughout the set-up phase, supporting municipalities and local stakeholders with organisational guidance, funding applications, and coordination activities. The initiative also benefited from existing inter-municipal collaboration structures and long-term local cooperation mechanisms already operating in the region.

KEY TAKEAWAY. The Alto Vicentino experience demonstrates the importance of inter-municipal cooperation, diversified funding approaches, and long-term facilitation structures in supporting large-scale energy community development. The case also highlights how existing local collaboration networks and dedicated technical assistance can help overcome regulatory uncertainty, governance complexity, and uneven stakeholder engagement.

READ MORE ABOUT THIS PRACTICE. For deeper insights on the CER Energy Community, visit the official CER website. In addition, find and download the case study factsheet on the PROSPECT Stories webpage.

For further information on the supporting role of AESS in this initiative as well as its broader activities in sustainable energy and climate action, visit the agency's official website.

4.2. Solar Energy Communities on municipal buildings in Valladolid (Spain)

GENERAL CONTEXT. The City Council of Valladolid launched an initiative to establish local solar energy communities using municipal rooftops for photovoltaic installations. The model aims to support shared self-consumption schemes for households located within 2,000 metres of the installations, while accelerating the city's energy transition and prioritising lower-income households.

HOW THE ENERGY COMMUNITY OPERATES. The initiative is based on a concession model under which a private company finances, installs, and maintains photovoltaic systems on municipal buildings in exchange for the right to use the rooftops. The municipality receives compensation in kind corresponding to part of the generated electricity, while participating households benefit from locally shared renewable energy and reduced energy costs.

In addition to renewable energy generation, the initiative includes free energy advisory services supporting participating citizens and households. The model combines municipal asset mobilisation, private investment, and community participation within a long-term operational framework lasting up to 25 years, including optional extensions.

KEY TAKEAWAY. The Valladolid experience demonstrates how municipalities can mobilise public assets to enable local energy communities without requiring direct public investment. The case also highlights the

importance of supportive regulatory frameworks, community engagement, and accessible advisory services in supporting inclusive and replicable local energy initiatives.

Figure 4. Solar energy communities on municipal buildings in Valladolid (Spain)

READ MORE ABOUT THIS PRACTICE. For deeper insights on the Valladolid Energy Community initiative, find and download the case study factsheet on the PROSPECT Stories webpage.

For further information on the Agencia de Innovación y Desarrollo Económico de Valladolid (IDEVA) the supporting role of in this initiative as well as its broader activities in sustainable energy and climate action, visit the agency's official website.

4.3. The Prague Renewable Energy Community (Czech Republic)

GENERAL CONTEXT. The Prague Renewable Energy Community (PSOE) was established by the City of Prague in 2021 to accelerate renewable energy deployment and enable local energy sharing among municipal organisations and citizens. The initiative supports the preparation, implementation, and operation of photovoltaic systems and RES and EE projects across the city.

HOW ENERGY COMMUNITIES WERE APPLIED. PSOE operates as a city-led support structure managing the full project cycle, including technical and financial planning, construction support, electricity sharing, and long-term operation. The initiative also assists members with feasibility studies, grant applications, and project preparation activities, helping reduce administrative complexity and transaction costs.

A distinctive feature of the model is PSOE's own electricity market licence, which allows the organisation to centrally manage market participation and energy sharing on behalf of members. The initiative combines municipal funding, national grants, and ELENA support while integrating renewable energy, EPC schemes, and broader energy-saving projects within a coordinated municipal framework.

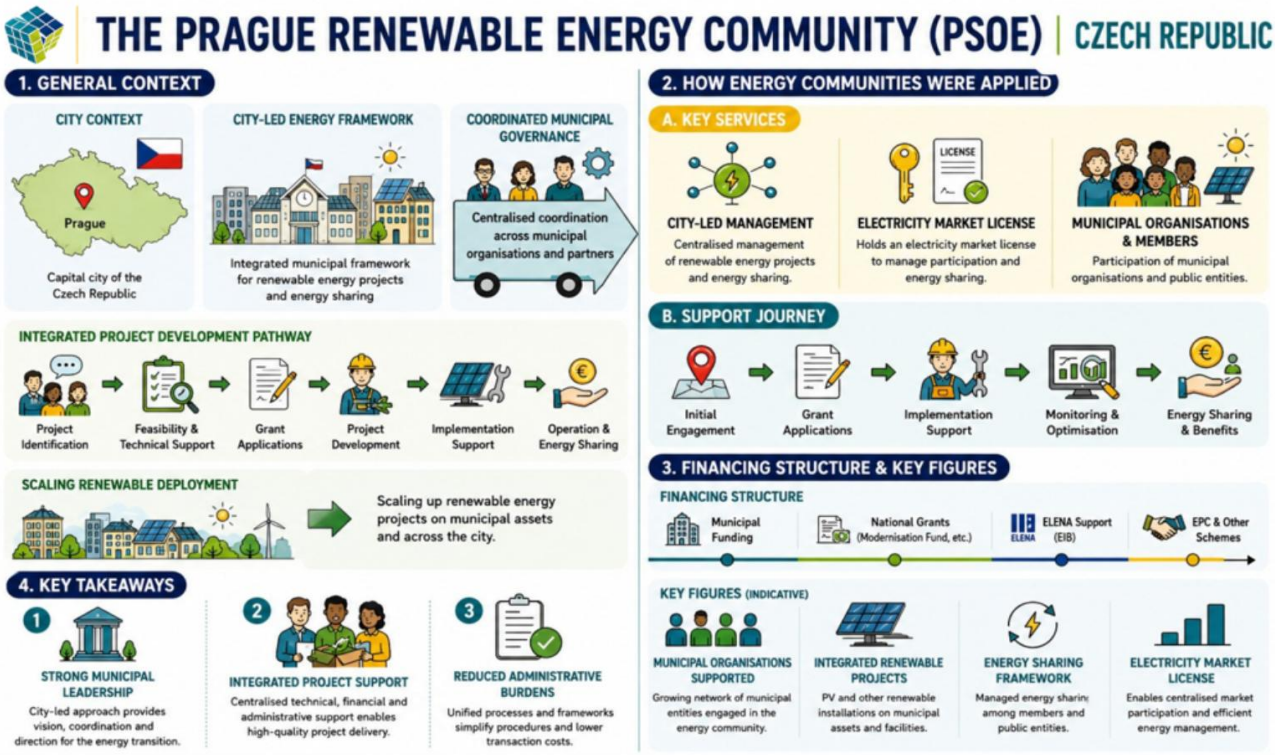

Figure 5. The PSOE energy community (Czech Republic)

KEY TAKEAWAY. The Prague experience highlights the value of strong municipal leadership, integrated project support, and coordinated governance in enabling urban energy communities. The case also demonstrates how municipalities can reduce administrative burdens, mobilise external financing, and create scalable frameworks supporting local renewable energy deployment and energy sharing.

READ MORE ABOUT THIS PRACTICE. For deeper insights on the PSOE initiative, find and download the case study factsheet on the PROSPECT Stories webpage.

For further information on the Association of Local Energy Managers (SEMMO) the supporting role of in this initiative as well as its broader activities in sustainable energy and climate action, visit the agency's official website.

PROSPECT initiative enhances the capacity of LRAs to design, implement and scale innovative financing for their energy and climate projects, through a dedicated EU-wide repository of proven success Stories.

5. Summary of key takeaways

Energy communities can serve as an important enabling mechanism for local and regional authorities to accelerate the energy transition while strengthening citizen participation and local investment. When supported by appropriate governance structures, regulatory frameworks and institutional capacity, energy communities can complement traditional energy infrastructure development and contribute to local climate objectives.

The main takeaways from this handbook are summarised below.

WHAT ARE ENERGY COMMUNITIES ABOUT? Energy communities are organisational and governance models that enable citizens, businesses, local authorities and other local actors to collectively participate in energy production, consumption, management and sharing of energy. At the European level, they are defined in the Renewable Energy Directive (EU) 2018/2001 and the Electricity Market Directive (EU) 2019/944, which recognise Renewable Energy Communities (RECs) and Citizen Energy Communities (CECs) as legal entities operating primarily for environmental, economic or social community benefits rather than profit maximisation.

As such, energy communities represent more than a technical model for renewable energy production. They combine local ownership, democratic governance and collective investment, allowing communities to jointly develop renewable energy projects, share energy locally, and provide energy-related services. Their added value lies in:

- mobilising local investment and resources,
- increasing public acceptance of renewable energy infrastructure,
- supporting local economic development and energy resilience,
- strengthening citizen engagement in the energy transition.

WHO ARE ENERGY COMMUNITIES RELEVANT FOR? Energy communities are relevant for a broad range of actors involved in the local energy transition, including:

- Local and regional authorities seeking to accelerate renewable energy deployment, increase citizen participation and attract complementary investment.
- Citizen groups, cooperatives and community organisations interested in developing locally owned energy initiatives.
- Energy agencies and intermediaries supporting municipalities in climate and energy planning.

Authorities can take different roles in the development of energy communities. They may act as initiators, facilitators, partners or enabling institutions, for example, by providing technical support, access to public assets such as rooftops or land, or administrative guidance.

Energy communities can also emerge in different contexts, ranging from citizen-led renewable energy projects to industrial energy communities where companies jointly invest in shared energy infrastructure.

WHEN ENERGY COMMUNITIES ARE MOST EFFECTIVE? Energy communities can take many forms, and there is no single model suitable for all contexts. Their effectiveness depends on several enabling conditions related to governance, financing, regulation and local engagement.

Energy communities tend to be most successful when the following conditions are present:

- Strong local participation and engagement, ensuring that members have a genuine stake in decision-making and project outcomes.
- Supportive regulatory frameworks, including clear rules for legal entities, grid access, energy sharing and collective self-consumption.
- Access to financing mechanisms, combining member contributions with grants, loans or other complementary funding sources.
- Institutional support and technical expertise, for example, through energy agencies, consultancies or One-Stop-Shop structures that assist with legal, financial and administrative procedures.
- Clear governance arrangements and project objectives, including transparent decision-making processes and defined responsibilities among members.

Energy communities often start with renewable electricity projects, such as photovoltaic installations or wind turbines, and may later expand to additional activities, including energy sharing, storage solutions, electric vehicle charging or energy efficiency services.

When these enabling conditions are in place, energy communities can become powerful instruments for mobilising local investment, strengthening energy democracy and accelerating the implementation of local climate and energy strategies.

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