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WESHARE

D3.2 Selection of viable business models

Empowering businesses in Europe to
develop energy community models
for a successful energy transition

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#WESHARE



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Table of Acronyms

CAPEX	Capital Expenditures
CEC	Citizen Energy Community
CSC	Collective Self-Consumption
DSO	Distribution System Operator
DSM	Demand Side Management
EC	Energy Community
ECBMs	Energy Community Business Models
ESCO	Energy Service Company
EU	European Union
EV	Electric Vehicle
GSE	Gestore dei Servizi Energetici
ICT	Information and Communication Technology
IEC	Industrial Energy Community
OPEX	Operation Expenditures
P2P	Peer to peer
PPA	Power Purchase Agreement
REC	Renewable Energy Community
ROI	Return on investment
V2G/V2B	Vehicle-to-grid/Vehicle-to-Building

Deliverable Review table

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Version 2	26/11/2025	Cedric Mattelaer (GENE)
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Executive Summary

Deliverable D3.1 outlined the differences between traditional business models and Energy Community Business Models (ECBMs), including the key components of the Business Model Canvas and detailing eight archetypes most commonly adopted by Energy Communities. Additionally, Deliverable 1.1 examined legislation at both the EU level and within pilot Member States, highlighting major differences among countries and their respective legal constraints. Furthermore, Deliverable 4.1 (Comparative Analysis of Current Practice) explored the context of the three pilot sites, analyzing the specific characteristics of each country and identifying the main opportunities and challenges for Energy Communities within these contexts.

Building on these milestones, the primary objective of Deliverable 3.2 is to develop a blueprint of available and potentially successful business models, tailored to the different use cases of the three pilot sites, which can subsequently be replicated in future industrial energy communities.

This report is structured around the key questions that Energy Communities must address to identify the most suitable business model within their specific context, under the current regulatory framework, and considering their unique characteristics. These questions—and the proposed guidelines—are derived from an in-depth analysis of the three WESHARE pilots and supplemented by insights gathered through detailed questionnaires completed by other successful Energy Communities. We extend our sincere appreciation to the Energy Communities in Villanova d'Asti, Villalonguéjar, and Manresa for generously sharing their experiences with us.

1. Introduction / Background

The European Union is undergoing a profound transformation of its energy system, driven by the ambitious climate and energy objectives set forth in the European Green Deal and the Energy Union Strategy. These initiatives aim to achieve climate neutrality by 2050, strengthen energy security, and ensure a just and inclusive transition toward a sustainable economy. At the heart of this vision lies the empowerment of citizens, businesses, and local stakeholders to actively engage in the energy transition.

Energy Communities—collaborative initiatives in which stakeholders produce, consume, and manage renewable energy—have emerged as a pivotal instrument for democratizing energy systems and accelerating decarbonization. While traditionally concentrated in residential and municipal contexts, their application within the industrial sector represents a significant opportunity to reduce emissions, lower energy costs, and enhance competitiveness.

The EU's Clean Energy Package, REPowerEU, and the Green Deal Industrial Plan explicitly endorse the development of Energy Communities, recognizing their role in fostering innovation, resilience, and local value creation. In industrial zones, these communities can enable shared infrastructure, optimize energy consumption, and unlock access to green financing mechanisms.

This report examines viable business models for establishing Energy Communities in industrial settings, with a particular focus on financial sustainability, stakeholder engagement, and regulatory compliance. It draws upon the conclusions of Deliverables 1.1, 3.1, and 4.1, as well as the experiences of the three project pilots—Getafe, Sines, and Antwerp—and other successful Energy Communities. The analysis identifies key challenges encountered during their implementation and proposes best practices and solutions to overcome these barriers.

2. Business models for Energy Communities.

The characteristics of Energy Community Business Models (ECBMs), which focus on delivering environmental, economic, and social benefits to the community, were detailed in deliverable 3.1. The collaborative and decentralized nature of ECs introduces new dynamics compared to traditional business models, such as collective ownership, multisided interactions, and significant reliance on network effects. These distinctive features require a tailored approach to BM innovation, emphasizing shared value creation and community-driven objectives.

The main elements of analysis were already outlined in deliverable 3.1:

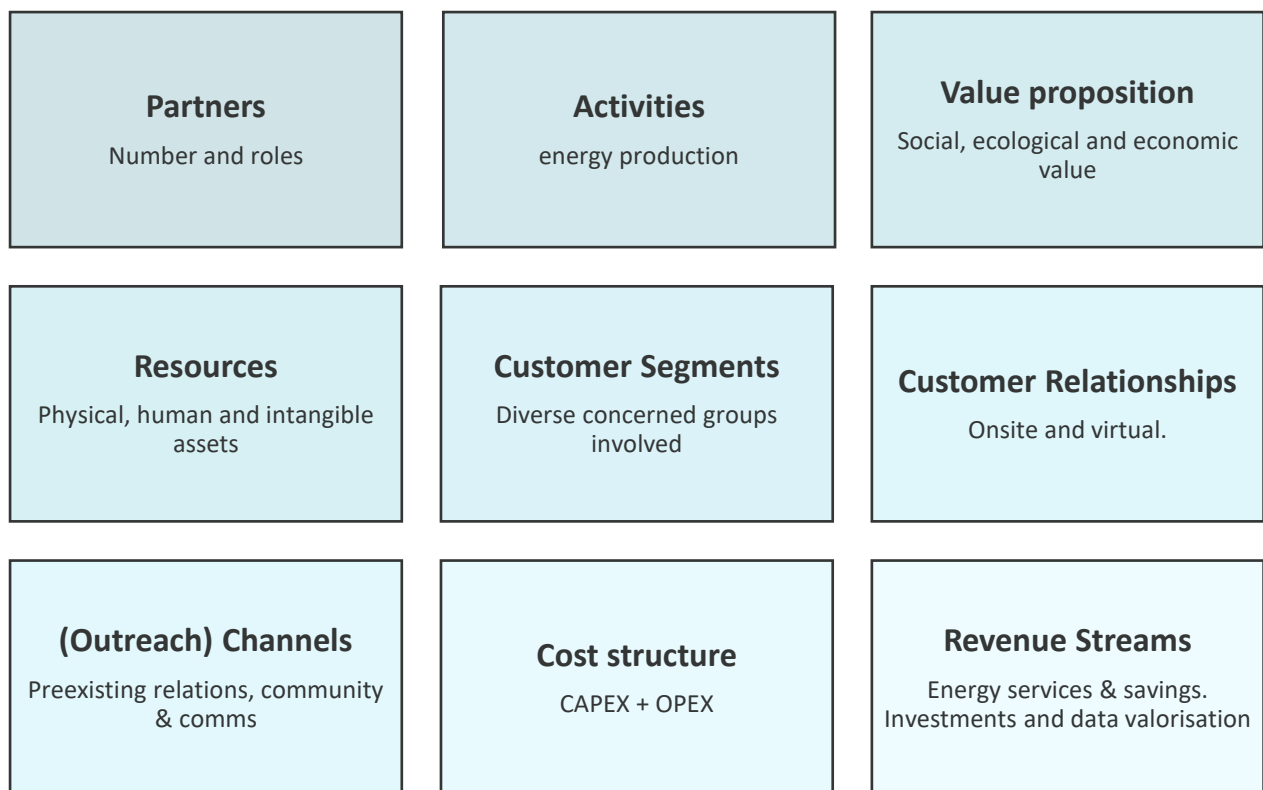


Figure 1 Elements of traditional Business Models

Source: Report 3.1 WESHARE

2.1. Specificity of Industrial ECs

As it was mentioned in WESHARE report 4.1, while the EU's key advisors primarily focus on citizen-led energy communities rooted in democratic ownership and social inclusion, energy initiatives in business parks often follow a different logic. These business-oriented projects typically involve contractual collaborations between companies with a focus on cost reduction, energy efficiency self-sufficiency and self-consumption. Unlike citizen energy communities, which emphasize participatory governance ('one member, one vote') and local value creation, ECs in business parks are generally driven by commercial interests, scalability, and return on investment. As such, they often fall under Collective Self-Consumption (CSC) schemes rather than Renewable Energy Communities (REC) or Citizen Energy Communities (CEC) as defined by EU law. National translations of the EU directives often not allow CEC or RECs to create profit for individual members but should be shared or re-invested in the community. This distinction is crucial: while both models contribute to the energy transition, they require different support structures, regulatory treatment, and governance models.

As outlined in Deliverable 3.1., the Weshare approach to industrial energy communities business models is very hands-on, and focuses on the practical choices an energy community should be setup in order to be successful. As outlined in figure 1, it focuses on the business model as a collection of participants, assets and data and financial flows.

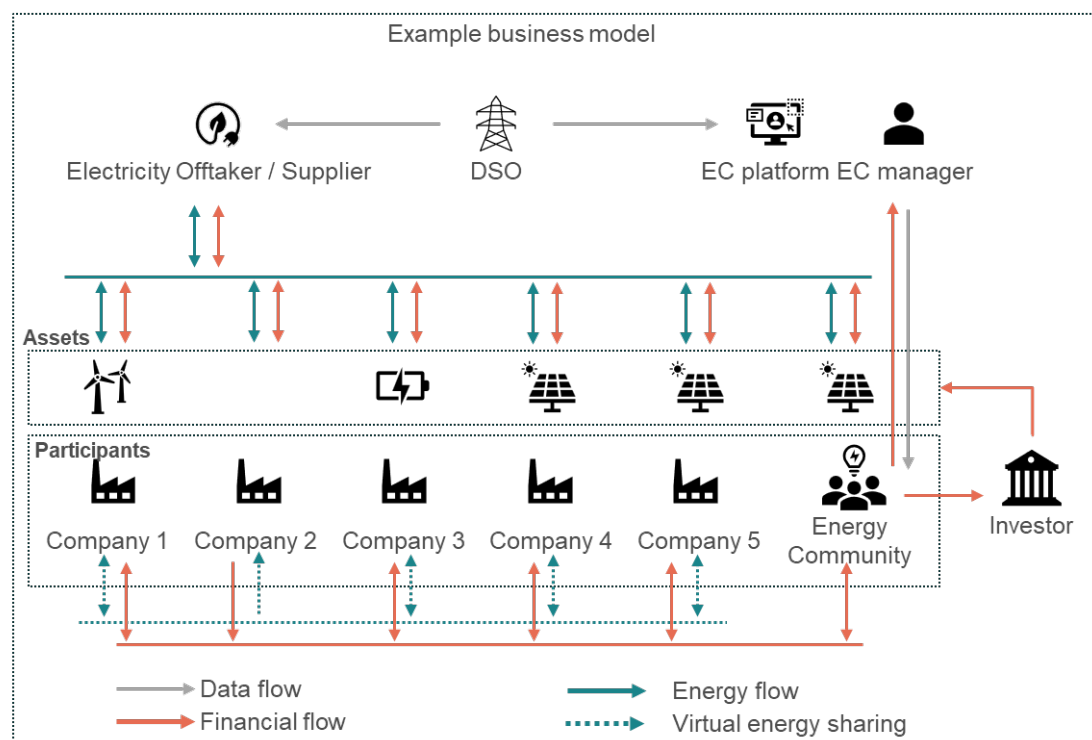


Figure 2: Example of a basic Energy Community business model

Source: WESHARE report 3.1

In the next chapter we will define the dimensions that have the biggest impact on an EC:

- **Governance:** decision-making, legal form, role allocation.
- **Participants:** which stakeholders are involved? What is each partner's role?

- **Assets:** who owns the energy assets? Who invests? How are they operated?
- **Finance:** how is CAPEX financed? How are OPEX and revenues structured?

3. General guidelines for determining the best business model.

Industrial Energy Communities represent an emerging model of industrial collaboration, advancing at varying speeds depending on national regulations and local contexts. Despite these differences, they offer a promising pathway toward decarbonization and greater energy sovereignty.

3.1. Governance

The first step for the choice of the best ECBM is the selection of the most adequate Governance model, that defines **how decisions are made, how benefits are distributed, and members' trust and engagement.**

This means defining several aspects:

- **Participants**

The number of participants in industrial ECs is generally much lower than in citizen initiatives. Additionally, the size and activity of each business might be factors to consider, as the relative power of each member is more substantial with a lower total of participants and power inequalities can arise within Industrial ECs. The sector the businesses belong to is also a relevant factor when considering complementary consumption and needs, EC members will have different profiles and needs, and a long-term strategy should be based on reaching an equilibrium and aiming at matching demand intensive partners with adequate suppliers, finding the best combinations. Therefore, even though the principle of open and voluntary participation in Industrial ECs is still applicable, it can be somewhat limited by the strategic decisions of its governing bodies to ensure its sustainability and long-term success.

- **Ensuring the cooperative nature of the EC**

Even though Industrial ECs combine principles such as open and voluntary participation with a focus on cost reduction, energy efficiency self-sufficiency and self-consumption, they are still based on a cooperative business model, and they still consider social, environmental and ecological values that will be reflected in its governance structure.

- **Legal requirements per country**

The choice of governing structure of an Industrial EC is heavily influenced by the legal requirements each country has in place for choosing the most operative legal form (see table 1). The transposition of European directives widely varies among member states and national regulations also differ greatly, which results on a wide variety of options for ECs in practice.

Country	Transposition Approach	Legal Term Used	Practical Outcome
Flanders	Separate REC and CEC	Hernieuwbare energiegemeenschap Energiegemeenschap van Burgers	Confusion; REC used more often than CEC
Italy	REC-focused, CEC not distinct	Comunità energetica	One legal model based on REC; CEC underdeveloped
Spain	Merged definitions	Comunidad energética	Unified concept; variable implementation across regions
Portugal	Harmonised/merged framework	Comunidade de Energia Renovável / Comunidade de Energia	Clear, flexible framework; seen as best practice

Table 1 Existing regulatory framework in the Pilot states

Key requirements included in EU regulatory framework:

- ECs must have legal personality.
- Participation should be open and voluntary.
- Effective control by members (industrial actors in this case).
- Primary purpose should be environmental, social, or economic benefits, not pure profit.

In most cases, the final structure choice remains quite open. The most common IEC legal forms include:

1. Cooperatives

Cooperatives are relevant for industrial actors, especially when multiple SMEs collaborate, they offer democratic governance and shared ownership, ensuring participation, while maintaining a business structure. They are more common in countries with strong cooperative tradition (i.e. Germany, Belgium).

2. Limited Liability Companies (LLCs) or SL

LLCs or SL are frequently chosen for industrial communities (and not so much for Citizen ECs) due to higher capital needs and risk management. Businesses are more accustomed to this figure, that allows clear allocation of shares and responsibilities among industrial partners. However, their setup and requirements vary greatly among different countries.

3. Associations

Associations are mostly used for non-profit ventures or pre-commercial collaboration phases, they are often already established prior to the decision to set up an IEC, so the same umbrella incorporates both. Setting up requirements are sometimes easier than for a cooperative or LLC, but the EC needs might evolve at a later stage when activities become more complex, so this is something to factor in.

3.1.1. The WESHARE takeaway

The experience of many Energy Communities shows that the number of participants can vary widely depending on local conditions. While, for example, in Belgium it is easier to set up an EC already from the start with several dozen members, in other countries or contexts it is easier to start the process with a more reduced number. This is influenced by the legislation in place, but most importantly, by the coordination possibilities in a given location, pre-existing associative movements and trust within the community. Our

advice, when coordination or action difficulties arise, consider a phased growth, consolidating the first steps with the most motivated group of members to build momentum.

A solid Energy Community relies heavily on trust and a shared sense of purpose. These elements must be deliberately nurtured. One effective strategy is to leverage pre-existing organizational structures, such as local associations or business park organisations, that already unite the participants and can provide legitimacy and coordination capacity. It is equally important to ensure that participatory processes are in place so that all interested members feel heard, involved, and encouraged to contribute.

Finally, when selecting the legal form of the EC, keep in mind not only what is easiest at the start, but also the future evolution of the community.

Build on preexisting structures whenever possible and capitalize on the trust and relationships already in place within the (business) community, as well as existing entities that can endorse/support the process. Depending on each country's national legislation, you might need to take into account the future development possibilities of your Energy Community and the fact that some activities might evolve to end up being commercial. Therefore, choosing the best legal form should be based not only on the length of the initial process, but as well on the planned activities to be undertaken mid-term.

3.2.Partners

Partner composition determines the **governance structure, speed of implementation, and ability to innovate**. The main recommendation would be to have strong external partners, especially for data management. In addition, a close relationship with the DSO or TSO is key, for validating the energy flows and give insights on the economic implications of energy sharing.

- **Participation in the Energy Community**

While companies could, in principle, rely on their own human resources for the setup and management of Energy Communities, in practice they often lack the specific knowledge or technical expertise, this being quite a recent figure. Therefore, IECs are also in need of technical assistance and oftentimes support from public authorities, particularly to navigate the initial stages of EC setup.

- **Strategic contacts and dissemination**

Industrial ECs can feed on the preexisting networks of their individual members, having easier access to government officials, other industry representatives and interested third parties. Their outreach strategies are much more reliant in peer-to-peer contacts and strategic activities, having a professional approach in contrast to citizen led initiatives, that rely heavily on volunteers.

3.2.1. The WESHARE takeaway

The early stages of Energy Communities' establishment might be slow and cumbersome, as the legislative frameworks have a diverse level of design and development in different countries and ECs are still a figure in development. Therefore, counting with public bodies or other professional support is highly advisable, as well as participating in summits, conferences, trainings and other exchange opportunities.

As a matter of fact, Antwerp's structure enables a multi-stakeholder governance using existing institutional frameworks, while Sines must build partnerships under stricter regulatory boundaries, potentially favouring cooperative or association models with strong private-sector collaboration. The regulation in Spain is still under development and there is a high degree of flexibility in the form ECs choose. Most ECs in Spain remain under associative/cooperative frameworks, as is the case of the pilot in Getafe.

3.3. Activities

Once participants are defined, the **assets** to be deployed should be studied in detail to ensure the best fit with existing assets and the consumption profiles of the identified participants.

3.3.1. The WESHARE takeaway

Antwerp (Bosduin), Getafe and Sines represent distinct stages in energy community development, which directly shape their suitable business models. In Antwerp, most PV assets are already privately owned, with batteries expected in the future. The Energy Community (EC) does not own generation assets, acting instead as a coordinator via the PWRFULL platform and ZuidtrAnt. This setup favours a light, coordination-based model with low upfront investment, focusing on aggregation and optimization rather than asset ownership. In contrast, Sines is still forming, with PV and storage assets yet to be installed. Here, the Renewable Energy Community (REC) is expected to own collective assets, and several CAPEX approaches are being considered, including member ownership, REC ownership, ESCO partnerships, or bank financing. As a result, Sines may require a capital-intensive, asset-based or hybrid ESCO-REC model, where the REC plays a central role in development and management. The EC in Getafe will be organised around independent projects, not all members will participate in all projects, and only the members benefitting from a project will invest in its setup. However, the EC as a whole will be responsible for maintenance and OPEX costs, in order to simplify the daily management. This contrast highlights how existing versus new infrastructure and ownership structures fundamentally influence the choice of business model.

3.4. Value Proposition

The value proposition of energy communities (ECs) for business parks lies in creating tangible and strategic benefits for member companies by pooling resources, optimizing energy use, and enabling collaborative energy management: More in detail, the main values are:

- **Cost Reduction** among lower electricity bills through optimized energy sharing among members, aggregated purchasing of energy or flexibility services to achieve better rates and shared investments in PV, storage, or EV infrastructure reduce individual CAPEX.
- **Energy autonomy and resilience** that increase self-consumption of locally generated renewable energy, reducing dependence on the grid and exposure to price volatility and enhanced resilience against outages or peak demand issues.
- **Operational Efficiency** through the centralization of management platforms (e.g., PWRFULL) simplify monitoring, billing, and coordination and the access to technical and organizational support for energy planning and asset operation.
- **Sustainability and Corporate Responsibility** that accelerates decarbonization by deploying renewable energy collectively and supports ESG and corporate sustainability goals, improving brand value.
- **New Revenue and Service Opportunities** through the participation in flexibility markets or providing services to the DSO, offering aggregated energy efficiency services and EV charging infrastructure to members and potential to scale into a regional energy hub or industrial REC for long-term benefits.

3.4.1. The WESHARE takeaway

In the Bosduin business park, companies are exploring energy sharing to reduce electricity costs and enhance energy resilience, leveraging existing assets through centralized management on the PWRFULL

platform. Technical and organizational support from ZuidtrAnt and POM ensures smooth coordination, while future services could include aggregated energy purchasing, energy efficiency measures, flexibility services to the DSO, and EV charging and storage. In contrast, ZILS is developing a scalable industrial Renewable Energy Community (REC) with collective installation of PV, battery storage, and EV infrastructure. This approach aims to lower energy costs through optimized energy sharing and increase autonomy and resilience for all member companies. In Getafe, the main motivation factor contributing to the setup of the EC is energy independency and reduction of operation costs. A study has shown that sharing production from preexisting assets will only have a limited impact in the Getafe case, therefore its development will revolve around targeted projects that will work in parallel, in order to maximize their impact. All three initiatives demonstrate the value of collaboration, though Bosduin focuses on coordination of existing assets, while ZILS and Getafe emphasize collective ownership and capital-intensive development to enable long-term energy control and scalability.

3.5. Cost structure

- **CAPEX (capital expenditures)**

One of the most important decisions an IEC needs to take is regarding ownership and CAPEX investments, which activities will be carried out (energy generation, energy storage, investment on e-mobility) and how those costs will be financed. Key decisions are if ownership will be collective or only by some members, what investments are required, what fees will be charged to other members of the EC, if maintenance of installations is a collective or individual cost etc. These decisions will heavily influence future developments of the EC. For example, as mentioned above, in the Getafe Pilot, the IEC members have decided they will develop the activities around projects, members can decide the projects they join depending on their needs and geographical location, thus covering the investments as decided among the project's members, however all OPEX costs related to all projects will be covered by the EC as a whole.

- **OPEX (operational expenditures)**

The coverage of Operation Costs is a crucial decision to be taken within an EC. Different cost categories fall under OPEX: costs of operating and maintaining the community's assets, such as management platforms, energy monitoring systems as well as the EC manager's fees, taxes, network charges, and compliance costs.

- **Activities beyond energy generation and consumption.**

The IEC might engage in additional activities, such as monitoring and data processing, community building and exchange of information with other ECs or stakeholders, as well as setting up ancillary activities for mutual use within business parks (shared services, transport, childcare, etc.). Choosing which activities to engage in is crucial for ensuring long term sustainability of the IEC, as these activities come at a cost.

3.5.1. The WESHARE takeaway

In early stages, it is useful to be as precise as possible concerning future costs and activities of the Energy Community. Adequate financial planning and turnover estimations can highlight potential weaknesses, dimension future investments properly and prevent unnecessary delays.

This planning exercise will also influence the governance model, the choice of legal form and the development of activities in phases, using pilots or trial installations. It will also serve as a first indicator of the amount and type of partners needed for a successful start.

3.6. Financing

ECs business models are quite new and innovative, and therefore banks and other investors still perceive them as a risky investment, due to the fact that participation is open and voluntary and there are only a few successful implemented ECs that are still in early stages.

Businesses have oftentimes easier access to financing than citizens. However, the EC business model is still evolving and funding options remain limited, particularly for the ECs as a whole (as an independent entity). On the contrary, some activities are more easily financed, for example, initial contributions from each company destined to the establishment of the EC (as the commitment relies on the particular business), or advances to already approved subsidies because there is an additional guarantee, as public entities are involved.

Later developments and subsequent phases, such as storage or mobility solutions, are frequently easier to finance, because they are set up once the energy production and consumption are already in place and profitable and the EC has shown a degree of stability and solvency.

We have also learned about cases of ESCOs promoting the setup of an Energy Community, although this changes its nature in most cases and shifts control and management from the EC. Additionally, private funds are starting to regard ECs as a specific viable BM to invest in, using the installation as the guarantee that assures the viability of the enterprise.

Concluding, finance is not just about paying for assets; it shapes the EC's ability to operate, scale, and deliver services. Choosing between low and high CAPEX models and the associated revenue streams determines the EC's long-term economic viability and the value it can offer its members.

3.6.1. The WESHARE takeaway

Building a strong and detailed financial plan is indispensable for finding investors and funding, this is a relatively new business model, and banks and other entities are not always prone to financing enterprises that they consider risky. However, Industrial Energy Communities are in a better position vis a vis banks and financial institutions, as they are more organized and solvent.

4. Roadblocks identified

Aside from choices and opportunities by each independent Energy Community, WESHARE has identified a number of challenges that affects the setup of successful ECs.

- **Lack of legal certainty**

One of the most frequent and substantial roadblocks is the myriads of different legal frameworks among member states, as well as the vague and incomplete development of legislation, which leads to a high degree of uncertainty in the setup of ECs. This uncertainty has severe consequences, for example, in Spain this vague legal framework entails a high degree of arbitrariness at the moment of connection to the grid, delaying the process often unnecessarily with additional requirements requested by the DSO.

The lack of harmonization, combined with varied interpretations of “geographical proximity,” grid access, and administrative rules, creates uncertainty for SMEs and hinders broader adoption of local energy sharing models. Clearer guidance and legal simplification could greatly enhance participation and impact.

Often, the most successful ECs are based on previously existing cooperation schemes, i.e. business park associations or other coordinated structures.

- **Role of public sector institutions**

IECs, being a new actor in the new paradigm of the energy market, require a significant amount of work and specific knowledge, particularly in their initial stages; thus, many IECs rely on local authorities to support their setup, as facilitators and promoters. Additionally, municipal authorities also often dedicate public resources to the ECs, lending municipal rooftops for installations, dedicating human resources to the follow up of the process and mediating among different actors as a source of legitimacy. This is a win-win situation, ECs benefit from the privileged position of local authorities, their support and knowledge, while municipalities and other bodies tackle local problems such as sustainability and decarbonisation, as well as energy poverty initiatives.

In certain countries, for example in Portugal, local governments face significant obstacles to join ECs as a full member due to the legal obligations imposed on public entities, specifically:

- Remuneration for energy supplied within the REC conflicts with Public Procurement Rules.
- Participation of local authorities in a REC (private entity) faces restrictions under Law No. 50/2012, the legislation that regulates the framework for local business activities and municipal participations.

As a result, compliance with these legal requirements affects the participation of local entities in our pilot in Sines at this stage, although their future participation is not excluded, and new approaches for their participation are being explored.

- **Assets ownership**

Ownership of EC assets often presents a mixed structure: some installations belonging to members, some others under collective ownership, services and maintenance costs sometimes shared, others decentralised. This coexistence of asset ownership may overcomplicate EC management, and it is crucial to simplify and detail the situation of all resources, this influences not only the revenue and costs of the EC as a whole, but also how it can be presented to interested new members or funding institutions.

- **Financing**

Financial institutions require guarantees for lending to ECs, one of the main aspects of incertitude is the “open and voluntary” principle, which adds a degree of instability to the composition of ECs and prevents the figure from being seen as solvent beneficiary on the long run.

Very often banks will opt for financing individual businesses in the framework of an EC instead of the EC as a whole as they consider they are more solvent individually.

- **ROI delays.**

Compared to citizen energy communities, industrial contexts typically involve higher energy volumes and fewer participants, allowing for comparatively lower administrative costs and greater economies of scale. As a result, Return on Investment (ROI) tends to be more substantial, however, Industrial Energy Communities are a long-term investment, and the delays caused by legislative and procedural uncertainties can impact the process, delaying the return of investment. For example, in Spain ECs have declared significant delays at the point of grid linkage, therefore many ECs operate first as CSC with no surplus, limiting the economic advantages to cost savings for an extended period of time (up to two years).

- **Grid rigidity**

Adaptability to energy flows varies greatly from country to country and there persist significant barriers to coefficient adjustments and timely linkage to the grid, impacting severely the activity start of new ECs. As an example, in Spain the official delay for being linked to the grid is set to be 2 months, in practice it can last up to two years¹.

5. Conclusions and Recommendations

This report yields several key conclusions. Foremost among them is the observation that the business model for energy communities—whether industrial or citizen-led—is undergoing continuous evolution. This is largely due to the limited and uneven transposition of European directives at the national level, resulting in significant disparities among member states. Consequently, this regulatory laxity places considerable weight on national contexts, influencing both the pace and complexity of establishing energy communities and creating a framework that lacks a clear and precise roadmap.

This situation primarily affects the organizational structure of Energy Communities (ECs), leading to the coexistence of highly diverse models in practice. Moreover, it fosters an image of uncertainty, which translates into perceived risk among financiers and creates challenges in securing funding—particularly in countries where the model remains underdeveloped.

To mitigate these effects and promote the long-term implementation of sustainable energy communities, WESHARE proposes a set of guidelines informed by the experience of our pilot projects and in-depth interviews with other ECs. These best practices are summarized Figure 3, and focus on a four-phase implementation approach.

¹https://alianzaautoconsumo.org/wp-content/uploads/2020/10/informe-autoconsumo_PAGf.pdf

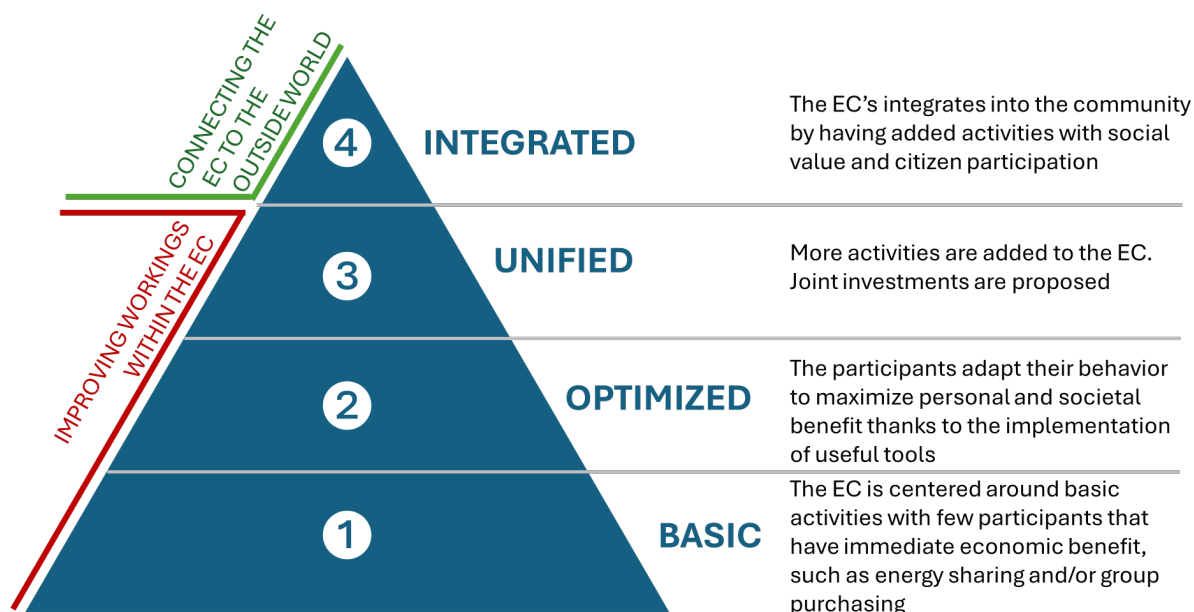


Figure 3: Weshare's 4 step approach for choosing an industrial EC's Business

5.1. Step 1: the “Basic” EC

The first step, a “basic” energy Community, serves mainly as the introduction of the involved companies to the concept of energy communities. To attract business participants and ensure the correct mobilization of resources, an immediate financial benefit of the participation should be offered as a **value proposition**. This can be realized through the offering of **activities** which maximize short-term economic benefit, such as grouped purchases of energy, or energy sharing between members of the EC. The **assets** involved should be limited to any existing assets, while the **cost structure** should concern only operating expenses (data gathering and sharing, invoicing, etc.) and paid for exclusively with the margin that is generated by the EC – to minimize any adverse effects that the participants might have. Likewise, we would recommend using external services for all the tasks involved, to limit the initial investment. The **governance** should be a balance between simplicity and, again, a minimization of risks for the participants. Those **participants** should be selected for their complementarity and be a limited number at first. If any organization is present already (e.g. a business park), that organization should be reused, if possible, as the EC. If not possible, it should act as the main channel for contacting new participants. A valuable alternative can be offered by the municipality in the case there is no pre-existing organization, as they likely already have contacts with the business in their municipality.

5.2. Step 2: the “Optimized” EC

The second step in the implementation can happen only after the companies have augmented their trust in the EC and the other participants, and the streamlining of the governance and relative processes (division of economic benefit, data gathering and invoicing) has been completed. The workings of the EC can then be optimized: specific companies can be targeted as new **participants** based on the analyses carried out on the now-operational business model, and some tweaks in distributing the generated value can be operated. Therefore, the offered **activities**, **value proposition**, **cost structure** and **governance** are largely the same as in phase 1. The optimization of the system must be based on real data, that can serve to adjust energy balances and adapt to specific member's needs. Additionally, EC's should join networks and foster exchanges. IECs are not competing with each other, as they are limited by their geographical scope.

Therefore, cooperation should be encouraged to learn from other experiences, advance successful solutions and influence policy developments. Similarly, creating or joining 2nd degree cooperatives/entities can be considered to optimize the resources and knowledge of IECs. A second-degree entity is a cooperative structure whose members are other small cooperatives that join forces to have better economies of scale and improve the management, exchange best practices and knowledge and be able to contract specialised professionals who can support their members in their particular needs at a lower cost, aggregating services offered to all members.

5.3. Step 3: the “Unified” EC

The third step consists in the unification of the EC. Thanks to the trust and the track record generated in steps 1 and 2, more **activities** can be added, and joint investments can be proposed. For example, an EC focused on energy sharing can add joint purchase agreements of energy to the activities it offers. Furthermore, some other energy services for members of the EC can be proposed, such as building EV charging stations or enabling the EC to provide flexibility to the grid on behalf of its members. Finally, joint investments can be carried out in new renewable generating capacity, battery storage or intra-EC distribution networks, impacting the **cost and revenue structure** of the EC and its **assets**. Those projects, given the track record of the EC, can now be financed through external debt. It is important to note that the participation in the EC is expected to shift the discourse of the participating companies slowly from a purely economic **value proposition** (necessary to encourage the first willingness to participate in the EC) to one based on collaboration and ecological values.

5.4. Step 4: the “Integrated” EC

The fourth and final step transcends the border of the EC as it includes the surrounding ecosystem. As such, it could offer to expand beyond the purely industrial EC by offering advantageous energy tariffs to nearby residents or invest the profits in non-energy related **activities** like nursery services, bike sharing or any other service that can benefit both the companies involved and the nearby residents. The **value proposition** then undergoes another shift: starting from purely economic in step 1 and 2, over the ecological value in step 3, it now includes also the social value, where the EC acts as a catalyst that can bridge the gap between companies and residents to improve the community in a broader sense.



WESHARE

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