Governing European Energy Commons: Rules and Local Conditions in Spain

Gobernar los Comunes de la Energía europeos: normas y condiciones locales en España

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Abstract: This paper analyzes Local Energy Communities within the paradigm of the commons and explores their key aspects of collective governance. Utilizing 18 in-depth semi-structured interviews with Spanish Energy Communities, this study examines their internal dynamics and their context interactions. The findings contribute to the understanding of Energy Communities, informing the development of more effective policies. The study reveals the adoption of diverse legal forms by Energy Communities, characterized by decentralized and democratic structures aimed at facilitating a fair energy transition. Moreover, they incorporate social inclusion mechanisms to mitigate economic exclusion. Finally, the commitment of these communities to reshaping the energy model is underscored, which involves defining both the material and spatial boundaries of production and consumption.

Key words: Local Energy Communities, Paradigm of the commons, Collective governance, Just Energy Transition, Spain.

Resumen: Este trabajo analiza las Comunidades Energéticas Locales desde el paradigma de los comunes y explora sus aspectos clave de gobierno colectivo. Mediante 18 entrevistas semiestructuradas en profundidad con Comunidades Energéticas españolas, se examinan sus dinámicas internas y su relación con el entorno. Los resultados aportan conocimiento sobre las Comunidades Energéticas y orientan el desarrollo de políticas más eficaces.

Se observa que las Comunidades Energéticas adoptan formas jurídicas diversas, con estructuras descentralizadas y democráticas que buscan una transición energética justa. Asimismo, intentan incluir mecanismos de inclusión social para mitigar la exclusión económica. Finalmente, se destaca que su apuesta por la reconfiguración del modelo energético implica definir los límites materiales y espaciales de la producción y el consumo.

Palabras clave: Comunidades Energéticas Locales, Paradigma de los comunes, Gobierno colectivo, Transición energética justa, España.

Introduction

Despite the criticism levelled at the lack of inclusion and engagement of non-governmental groups at the European Union COP26 side-event of SDG7 (Masood and Tollefson, 2021), the need to give voice to local communities was underscored once again (Energy Community, 2021). Together with the International Energy Agency (IEA), and with a view to addressing the inequalities of energy systems, the need to ensure a fair and people-centred transition was emphasised (European Commission, 2021). This need was already endorsed by the Global Commission for People-Centred Clean Energy Transition through its recognition that any clean energy transition must be genuinely people-centred and inclusive. In the European Union, this focus on the relevance of local communities had also already been established in the Policy Recommendations of the European Committee of the Regions (2019/C 86/05) (Gâju *et al.*, 2019; O'Brien *et al.*, 2018).

In order to help these communities adapt and benefit from the energy transition, they indicate that the transition must have a local and specific approach (IEA, 2021). These aspects are considered essential for the success of the energy system transformation, at the speed and scale needed to reach the overall aim of mitigating climate change. In addition to the recommendations aimed at reducing the negative economic impact that industries such as coal, and the people employed in them, would suffer, the tenth recommendation of the Commission for People-Centred Clean Energy Transition also highlights the importance of local community action when implementing different ways of managing energy. It indicates that the public and communities need to participate actively as decisionmakers, as well as being the innovators and beneficiaries of clean energy actions. In this regard, the EU believes that energy communities can help involve individuals in

the energy transition and the sustainable economy and can also promote the roll-out of sustainable energy technologies. This is why the EU recommends establishing policies and rules that promote local energy communities and local collaboration (Gâju *et al.*, 2019).

In this process, it is important to note that only gathering and analysing public voices to formulate policies aimed for energy transition is insufficient. It is also necessary to advance the proposal of alternatives to the current predominant centralised decision-making process for energy resources (Van der Schoor *et al.*, 2016). The transformation of the energy system into a decentralised system of renewable energy, both technologically and politically, requires the conversion of communities into energy-neutral or even energy-producing initiatives.

The recommendations have been adopted by the European Union and the current Spanish Government, who are committed to creating and consolidating this community action in relation to energy (Gâju *et al*., 2019; European Commission, 2019; Tounquet *et al.*, 2020; MITECO, 2020). The Energy Union is an EU strategy that defines the priorities of future policies aimed at ensuring a transition to an affordable, secure, competitive, reliable and sustainable energy system (European Commission 2015), and the publication of European directives (EU) 2016/864 and (EU) 2016/76, along with their subsequent reformulation by means of directives (EU) 2019/944 and (EU) 2018/2001, provide institutional support needed for the formation of these Energy Communities throughout Europe.

The European directives were transposed into Spanish legislation in June 2020 through Royal Decree Law 23/2020. This demonstrates the support they are receiving with a view to promoting the active participation of a range of stakeholders in energy transition (MITECO, 2020). According to the Spanish Government's Ministry for Ecological Transition and Demographic Challenge (2020), these local energy communities could also play a relevant role in reactivating the economy and creating jobs, both directly and indirectly, by invigorating local value chains and making savings on energy costs for domestic and industrial consumers, the service sector and public authorities. In Spain, Energy Communities can create jobs and attract innovative businesses, potentially revitalising underpopulated regions.

Energy Communities are present in the European Union. They are a way of organising collective energy actions based on open and democratic participation and governance. The purpose of these communities is to

secure benefits for their members or the local community (Van der Schoor *et al.*, 2016; Caramizaru and Uihlein, 2020; Fajardo and Frantzeskaki, 2021). As explained below, European Energy Communities are (self-) transforming collective initiatives that belong to the renewed paradigm of the Commons (Pelacho *et al.*, 2021; Atutxa and Zubero, 2019). These Energy Commons are formed by the action of a wide range of initiatives, from sustainability-oriented grassroots initiatives (Van der Schoor *et al.*, 2016; Hopkins 2013; Kooij *et al.*, 2018; Vita *et al.*, 2020), to eco-cities and eco-villages (Caprotti, 2015; Litfin, 2014), low-carbon based initiatives and communities (Peters *et al.*, 2010), and sustainable communities and neighbourhoods (Fraker, 2013; Coyle, 2011; Clark, 2010; Mazmanian and Kraft, 2009; Roseland, 2005), movements such as Transition Towns (Hopkins, 2008), low-carbon smart cities (Thornbush and Golubchikov, 2020; Kim, 2018) and more generally, low-carbon or decarbonised cities (Luque-Ayala *et al.*, 2018; Dhakal and Ruth, 2017; Rauland and Newman, 2015; Vansintjan, 2019), and even renewable energy cooperatives founded directly by citizens (Atutxa *et al.*, 2022). In the transition to a fair and inclusive energy model, management through the Commons is characterised by the principles of reciprocity, cooperation, social and environmental justice, and human autonomy.

Across their three dimensions —resources and economy, stakeholders and institutions, and discourse— the institutional characteristics that already exist in Spain have facilitated the appearance and consolidation of the Energy Commons (Atutxa *et al.*, 2020; Atutxa and Zubero, 2019). Research has begun into this local phenomena in the field of Energy (Giotitsas *et al.*, 2020; Melville *et al.*, 2017; Giotitsas *et al.*, 2022; Riutort, 2017; Urkidi *et al.*, 2015; Zubialde, 2016), but there is still much to understand about its dynamics. This is the point where our research is situated. Through an empirical investigation based on 18 in-depth semi-structured interviews, this paper analyses; 1) how Energy Communities define and accept shared norms and the influence that their legal status may have on them; 2) how these communities are formed, the commitments their members make and the mechanisms for economic inclusion that they implement, and; 3) the connections between energy as a social commodity, the community and the territory in which they operate (Figure 1[1]). Fundamentally, it is a scientific contribution to a better understanding of the debate around the energy justice that European

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1 In the Annex, at the end of this article, you will find Figure 1 and Table 1 (Editor's note).

Energy Communities aim to achieve (Caramizaru and Uihlein, 2020). That is, the debate about the potential that the Energy Commons have to bring the desired socio-technical changes in the energy landscape, in a morally, and socially just way.

Material and methods

The research is shaped by the overarching framework of *Energy Commons*, intricately linked with the concept of *Local Energy Community* (LEC) as defined in Spanish energy policy (Menéndez and Fernández, 2022). Likewise, it's noteworthy that the latter is grounded in the two distinct community models delineated in European legislation: *Citizen Energy Communities* (CEC) described in the EU Directive 2019/944 (European Commission, 2019) and *Renewable Energy Communities* (REC) defined in the EU Directive 2018/2001 (European Commission, 2018). Indeed, based on the methods used in other researches (Atutxa *et al.,* 2020), we selected *Local Energy Communities* that meet the characteristics of Commons. That is to say, conscious collective actions that can lead to the establishment of a new institution (Ostrom, 2015; Bollier and Helfrich, 2015; Zubero, 2013; Lafuente, 2007) that could also be thought as intentional communities. Human groupings whose members associate voluntarily to adopt and promote a social and a cultural alternative that is consciously devised and planned (Mardones and Zunino, 2019). The analysis is based on the first-tier components and second-tier variables of the Commons, as outlined by McGinnis and Ostrom (2014) and Ostrom (2009, 2015). In subsection 4.1, in relation to the first-tier component *Governance System* and the second-tier variables *Operational, Collective and Constitutional-choice rules*, the research focuses on exploring the ways in which shared rules are defined and accepted with a view to establishing who designs and accepts those rules, and how. In subsection 4.2, in order to contribute to answering the first-tier component *Resource System* and the second-tier variables *Clarity of system boundaries* and *Size of resource system*, the paper explores the formation of the community in relation to how the group authorised to use the common goods. In subsection 4.3, the connection between energy as a social good and the community, with a view to unpacking the rules governing the good's specific attributes with the appropriators, is studied with regard to the first-

tier component *Resource unit*s and the second-tier variable *Distintictive Characteristics*.

Relying on secondary sources such as their official websites or external reports, we identified 40 initiatives for initial scrutiny. Among these, 18 were chosen based on their alignment with the Commons paradigm for further analysis. This allowed for a second phase of interviews to be performed. The mode of interviewing was in-depth and semi-structured, allowing participants to influence the flow of questions and content, prioritising their voices and perspectives.

Due to the wide dispersion and divergence between data sources, to narrow down the selection of case studies, five solid primary sources have been utilized: 1) the study by Caramizaru and Uihlein (2020) for the European Commission's Joint Research Centre; 2) the enercommunities. eu repository supported by Interreg Europe; 3) the guides from Friends of the Earth (AdT, 2020 and 2021); 4) the Energy Communities viewer provided by the Ministry of Ecological Transition and Demographic Challenge and the Institute for Diversification and Saving of Energy (IDAE) and 5) *Unión Renovables*, the Spanish Federation of Renewable Energy Cooperatives.

Being an usual type of energy community (Caramizaru and Uihlein, 2020), four selected cases are energy cooperatives. However, various other forms of energy communities also exist. Therefore, in addition to the aforementioned sources, we have chosen to expand the population and sample by including specific cases that do not conform to the cooperative model or involve different infrastructures, forms of governance, or actors. To achieve this, we have also opted to utilize information from the following: 1) the *Energy Communities Network*, which not only identifies initiatives but also showcases success stories; 2) the *Iberian Network of Ecovillages* (RIE); 3) *Platform for a New Energy Model* (Px1NME), a Spanish citizen initiative advocating for the transition to a socially just and environmentally sustainable energy model; and 4) the *Transition Network*, grassroots community projects with the goal of enhancing self-sufficiency to mitigate the potential impacts of peak oil, climate destruction, and economic instability.

On this basis, the results presented herein are based on the analysis of findings of seven self-managed collective initiatives (represented by the acronym INA); four renewable energy cooperatives (CER); two social enterprises (ESO); two municipal initiatives for a transition towards energy autonomy (IMU); and three non-profit associations or foundations,

identified as (ASO'). This diverse analysis aligns with the guidelines outlined in the National Integrated Energy and Climate Plan 2021-2030 (PNIEC), emphasizing the significance of encompassing a broad range of energy communities, including various project typologies and business models. In pursuit of this comprehensive approach, the selection of cases aims to accommodate a representative diversity of the primary types of energy communities that may exist. In the Annex provides a summary table 1, a short description and the codification of initiatives analysed.

60 and 90 minutes digitally recorded interviews with the 18 selected initiatives, digitally recorder, constituted the data for this study. Informants where selected according to their level of knowledge of the initiative, their active involvement, holistic perspective and availability. Qualitative data were systematically coded and analysed and reflexivity was prioritised (Alvesson and Sköldberg, 2009). This allowed for a deepening of the interviews beyond the guiding questions. Once everyone's pathways, actions taken, network participation and intricacies were understood, the objectives described above were thoroughly evaluated. Data collection was based on purposive and snowball sampling, non-probability sampling methods that prioritise gaining in-depth understanding over representativeness (Patton, 2002; Browne, 2005). The sampling strategy for this research, using author networks and referral chains, was slow and time-consuming, but yielded a sample of informationally rich participants (Bell *et al.*, 2007). Empirical saturation, as indicated by Guest *et al.* (2006) and Morse (1994), dictated the sample size. In other words, it determined the minimum number of interviews required to establish a comprehensive understanding of three the of the first-tier components of the Commons applied to the European Energy Communities located in Spain. By the fifteenth interview, saturation was considerable, and by the eighteenth interview no significant new ideas emerged. Following the eleventh interview, as the analysis progressed, there was a gradual and infrequent emergence of new themes. This interview count aligns with Morse's (1994) suggestion for phenomenological studies. Similarly, the codebook we developed achieved a relatively comprehensive and stable state after the initial eleven interviews and remained consistent even after integrating data from the subsequent seven interviews.

Thematic analysis was chosen as the approach to analyse the data (Boyatzis, 1998). The analysis began with each author actively and repeatedly reading the interview texts to immerse themselves in the data. Throughout this phase, frequent references to the literature were made to

ensure the inclusion of all relevant dimensions (Tuckett, 2005), while also remaining open to identifying previously unreported phenomena. The initial generation of codes focused on segments of data deemed crucial to understanding the governance forms of the Energy Commons (Braun and Clark, 2006). Following the coding and organization of data, we condensed the initial list of codes into themes. Although each author independently coded the data, regular team meetings were held to establish a unified approach to coding and interpretation, ensuring consistency and accuracy. In these meetings, we examined the themes for consistency in identified patterns, the distinct separation of content within each theme, and the degree of overlap between themes and data excerpts (Patton, 2002). In cases of code overlap, we consolidated them into a common code and eliminated codes that did not align with any of the themes. The final step involved defining and labeling the themes by clarifying their meaning, interrelationships, and the specific dimensions of the data they encapsulated.

Theory: The European Energy Communities as part of the constellation of the Commons

From a general perspective, the European Union interprets energy communities —both citizen energy communities (CCE) and renewable energy communities (CER), regardless of their specificities— as a way to collectively organize a variety of energy activities, primarily driven by citizen initiative. These activities can encompass electricity generation, storage, consumption, and other endeavors such as electric vehicle charging, operation of these energy systems, or active management of energy surpluses in the market (Menéndez and Fernández, 2022). Citizen participation is a central and pivotal element in the development of energy communities. Moreover, energy communities serve as a means to foster public acceptance of renewable energy projects, as they primarily aim to generate direct benefits for the community.

Specifically, two EU directives 2016/864 and 2016/767 (European Commission, 2017a and 2017b) and subsequently reformulated by the EU Directive 2019/944 (European Comission, 2019) and the EU Directive 2018/2001 (European Comission, 2018) defined the European Energy Communities as entities with legal status, controlled by local members, generally geared toward value rather than profit, that undertake energy generation, distribution, aggregation, storage or supply, or the

provision of energy efficiency services on a local level (Fajardo and Frantzeskaki, 2021). Following EU Directive 2019/944 and EU Directive 2018/2001, the Energy Communities became the European Union's vehicle for consumer participation in the energy market, through the constitution of entities for that purpose (Fajardo and Frantzeskaki, 2021). Therefore, for the European Union, energy communities represent novel forms of organizing energy activities aligned with the energy transition and the transformation of traditional energy systems into new systems characterized by an increasing penetration of renewable energies, a progressively decentralized distribution of energy resources, and an active and leading role for consumers (Menéndez and Fernández, 2022).

Although their technical, legal and financial status is yet to be specified, something similar is occurring in Spain through the transposition of these directives into state legislation (Royal Decree Law 23/2020). Although at the time of conducting this research, this transposition is partial, the concept of *Local Energy Community* presented in the "Guide for the Development of Support Instruments for Local Energy Communities" published by the Institute for Energy Diversification (in 2019) encompasses the two types of communities —CCE and CER—outlined in European legislation. This decision has been consistently maintained in other documents within Spain's energy policy, such as the National Integrated Energy and Climate Plan 2021-2030 (PNIEC), the Recovery, Transformation, and Resilience Plan promoted by the Spanish government, the "Public Consultation on Local Energy Communities" (2020), and the "Expression of Interest in Local Energy Communities" (2021).

The European Federation of Citizen Energy Cooperatives (REScoop), a network that includes more than 1,900 cooperatives operating across Europe which, together, represent more than 1.25 million citizens, acknowledges that the *Energy Communities* are key to acting on climate crisis, boosting local economies and revitalising communities (Friends of the Earth Europe *et al.* 2020). According to these organisations, by promoting energy democracy, energy communities can facilitate: 1) a reduction in the use of fossil fuels; 2) a reduction in energy consumption; 3) investment in clean energy; 4) addressing fuel poverty; 5) support for the local economy; 6) wealth redistribution; and 7) a strengthening of the local communities themselves.

The described characteristics of the European Energy Communities mean they belong to what is now known as the Energy Commons

(Atutxa *et al.*, 2022; Melville *et al.,* 2017; Acosta *et al.,* 2018; Dawson, 2020; Laval and Dardot, 2014). They may be considered part of the constellation that comprises the Commons instituting praxis (Byrne *et al.*, 2004), that is, (self-)transforming collective initiatives generated by people who, through joint action, are capable of proposing socially and environmentally fair ways of managing shared-use resources such as energy. Rather than management by centralised state administration and delegation to market forces, these communities seek greater human autonomy by means of positioning the citizens at the centre of government. Furthermore, the EU's support for forming and consolidating Energy Communities throughout the territory comprises, in fact, a commitment to the *commoning* (Bollier and Helfrich, 2015; Zubero, 2013; Byrne *et al*., 2004; Rayner, 2012) of at least a part of the European energy system.

The previous statement has profound implications. The European Energy Communities have not only the potential to reinstate communal energy management (Linebaugh, 2009), but also to reinvent their forms of governance. From the perspective of the Commons, the results set out below contribute to the debate around the transformational potential of the European Energy Communities in their implementation in the Spanish context. That transformational potential is not only limited to a cooperative reformulation of their forms of governance, but rather, it establishes the need to form a more sustainable energy model by re-localising energy production, reducing consumption of fossil fuels in particular, and placing citizens at the centre, by socialising the means of production and responding to fuel poverty (Atutxa *et al.*, 2020; Giotitsas *et al.*, 2020; Giotitsas *et al.*, 2022).

Results and discussion: appropriation, provision rules and local conditions of the Energy Commons in Spain

The empirical analysis conducted as part of this research confirms that there is no single, homogeneous form of governing the Energy Commons that applies to all contexts. However, certain shared patterns can be identified.

Definition and collective acceptance of shared norms

If we focus on certain key aspects taken from the interviews, it is valuable to consider; 1) the influence their legal status may have on the initiatives'

forms of governance; 2) notwithstanding the clear peculiarities of each example, the models that are being taken in Spain as reference points for designing collective management systems and, to be specific; 3) where decisions are made in these communities.

The irrelevance of legal status

One of the key conclusions drawn from the extensive field work is that the legal status affects, but does not determine, the levels of democracy and participation in the mode of government. The sliding scale of these two aspects is evident in both the self-managing initiatives and in renewable energy cooperatives, social enterprises and organizations that operate traditionally in the non-governmental sphere. The following statement from an interview with a private limited company is just an example of this.

> (...) in Ecooo, regardless of the legal formulation, we are all people who form part of a project. There is not one company and a number of employees. We are all responsible for our own work, but we work as a team. Each person has a different task and is responsible for the outcome of their work. We all have the power to influence and instigate ideas and changes, making our character very open and flexible [ESO_E1].

The legal forms that initiatives take seem to be determined by what is most suitable at the moment of constitution. So, practices that aim to operate in the sector by producing and selling energy have opted to work as cooperative societies (CER_E1 CER_E2, CER_E3, CER_E4). This framework, through legislation, establishes certain mechanisms for participation and collective decision-making. Projects constituted as social enterprise have chosen this alternative for its flexibility and the low legal bar set for creation (ESO_E1, ESO_E2). The initiatives that intend to demonstrate other ways of operating through self-management present a range of forms, depending on how they are integrated into the system. Those that interact closely with public administrations or other entities in the social economy tend to select associative models (INA_E1, INA_E2, INA_E4, INA_E5). Those emerging from occupation processes (INA_E3, INA_E6) tend to keep without a legal form or have transitioned to associations.

Reference to Sociocracy

In line with the above, the Energy Commons are capable of adapting to complex and changing situations through a range of systems and

mechanisms and contingency strategies, alternative and complementary to the ones provided by their legal figures.

> Until a year ago, and we are still in a period of transition, all agenda items and matters to discuss that anyone raised were taken to a traditional assembly. (...) We are now transitioning toward a structure with six areas. (...) [One of which is] emotional management, encompassing individual, interpersonal, and group health [INA_E3].

Some liken themselves to neighbourhood groups (INA_E1), and others identify more with organisations based on campaigning and unionisation (INA_E5). From the different systems of rotating organisational responsibilities and decision-making (INA_E1, INA_E4), to the structural transformations required by a community's current context (INA_E3), the various forms of governance have interesting, shared elements.

There is a striking recurrence of the concept of sociocracy (Endenburg, 1998) as a model for decision-making and government. Various initiatives mention it when setting out how they organise themselves day-to-day (INA_E1, INA_E2, INA_E3). Given the specific nature of each practice, sociocracy becomes the starting point for exploring and better understanding their forms of governance. Some of the initiatives build their specific forms of government on the basis of the following four pillars: 1) Decision-making by consent, not consensus, which is essential for agile decision-making; 2) The formation of self-managing circles as places for community decision-making where collective needs can be resolved; 3) The double bond, to ensure information flow and transparency; 4) The open election, without nomination, of people for the various roles within each circle.

> Therefore, the decisions that compete at the perimeter of a circle's responsibility or power are made within that circle. If the decisions have significant scope, they are discussed, because communication must always be transparent, and any other person or circle may raise an objection to the decision. It would then undergo some work. But if there are no objections from any part of the field, the decision stands [INA_E1].

Regardless of their legal form, the initiatives all establish mechanisms to position people and participation at their centre [CER_E1, CER_E2]. The many changes include the fact that work is now organised into self-managing teams and the project's aims are transparent for everyone to see.

The prevalence of consent over consensus in decision-making is making progress in all initiatives. Some practices even use the term 'consentus' (a hybrid word that mixes consensus and consent) to raise awareness of the importance of reaching agreements in a way that is agile, but still reflective and shared (INA_E1). Given their proactive

and constructive approach, the communities afford great importance to collectively considered action rather than knee-jerk reaction. In this decentralisation of decision-making, a large part of the initiatives conclude that not all matters, especially the day-to-day ones, should be handled in assembly-type spaces in which the entire community participates. Organisation into teams or small, autonomous circles that are nonetheless interconnected by constant information flows are the current context or future aspiration of a large number of the practices we studied (INA_E1, INA_E2, INA_E3, INA_E4, INA_E5, INA_E6, CER_E1, CER_E2, ESO_E1). Large assembly spaces can be used for community matters that are structural in nature or apply to multiple circles or areas.

> It is not yet completely clear, but the rough idea is that each group makes its own decisions without the need for assemblies to make day-to-day decisions. Some decisions would still need to go through the assembly, especially during this period of transition and considering that the exact scope of each group is not yet clear [INA_E3].

It appears there is a general trend toward streamlining decision-making by reorganising activities into working groups that can reach agreements through consent rather than consensus, in order to respond to changing situations. Rigid structures give way to increasingly flexible models that must juggle the necessary versatility with informing and distributing decision-making capacity among all members of the community. The majority of the Energy Commons are in constant collective reflection on the ways in which forms of government can adapt to the community's internal requirements and those coming from outside.

Appropriation and community building

This exploration of the boundaries and exclusions that may arise from forming a community of appropriators raises a question mark over the universal nature of the Energy Commons in their everyday operation. In other words, it is important to assess the risk that a sector of the public is left out of the process of commoning and thereby understand whether their right to access energy would be undermined.

Inclusion on the basis of (un)awareness

Given the diverse range of legal forms and positions, all the interviewees display discourses that advocate inclusion. In fact, the communities

that entail total lifestyle immersion are currently actively seeking new members (INA_1, INA_3). To varying degrees, all the communities except for one are in a phase of mutual awareness-building, with different levels of recording (INA_1, INA_2, INA_3, INA_4, INA_5, INA_6). However, this does not mean that anyone who shows an interest automatically forms part of the community.

> Given our experience of having lived in the same area for many years, our group has at least realised that being very inclusive can sometimes go against what you are trying to achieve. Because if we open the door to everyone, without getting to know them first, there can be more friction and people who have a mistaken perspective on what this is all about, so they don't fit in [INA_E5].

Among the so-called *lifelong self-managing communities* (INA), the only one that does not have this phase (INA_4) forms part of the *Red Ibérica de Ecoaldeas* (RIE), [2] and acts as a training centre composed of a coordination team and a rotating contingent of volunteers. In fact, it defines itself as an international community of volunteers. It is perhaps the rotation that renders a long period of mutual awareness-building unnecessary. Rather, it is sufficient to know in advance the profiles of the people that will be working together.

The Renewable Energy Cooperatives do not have in this mutual awareness-building phase either. It may appear that mutual awareness between members of the community is relevant, but the ability to influence the future and the cooperative's strategic lines of action through votes and assemblies does not extend to the creation of protocols to integrate new members. Payment of the amount required to each person to be member is sufficient to fully form part of the community (CER_1, CER_2, CER_3, CER_4).

> The only requirement to join the cooperative is to become a member. (...) The €100 entry fee and nothing more. You pay that at the start and it forms mandatory social capital. As far as I know, all the cooperatives that I belong ask you to pay mandatory social capital. But you can claim back your €100 when you leave [CER_E2].

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2 The *Red Ibérica de Ecoaldeas* is "the network that relates, connects and reconciles 1) the different eco-villages that operate in the Iberian peninsula; 2) the different eco-village projects that people want to create; 3) different associations with similar purposes, and 4) the people who are living, seeking, finding how to express or manifest ourselves in this world, with respect for the planet and for people." For more information about the network, the practices it comprises and the activities they undertake: http://rie.ecovillage.org/es/search?keys=sunseedandtype_1=Allandlanguage=All

Given the divergence between the processes of on-boarding new appropriators in the Spanish Energy Commons, Hirschman's proposal (Hirschman, 1970) offers a useful explanation. He suggests two possible responses that members of a community can opt for when the latter does not meet their expectations. Members who disagree can opt for: 1) *voice*, which entails attempting to resolve and improve their relationship with the group by expressing their dissatisfaction and proposing changes; or 2) *departure*, if they decide to leave the community without attempting to resolve their disagreement. The simpler the departure from the community, the less voice will be used by the affected member, and vice versa. In addition, a third factor may affect the decision to opt for one or the other. *Loyalty* to the community may reduce the likelihood of opting for departure.

For reasons of loyalty and other matters related to the emotional and time investment that forming part of a *lifelong self-managing community* entails (INA_1, INA_3), it is possible that the departure option is limited. Once people are immersed in a community's dynamics, choosing to leave it and seek an alternative is not straightforward and may cause significant disruption to the community. In this way, in the initiatives that require complete lifestyle involvement, a phase of mutual awareness seems all the more pertinent. So, prior to full membership, it can be ensured that both the new appropriator and the community have an aligned, shared vision.

> On the one hand, there is quite a lot of interest from people who want to come. But the process of coming from wherever you come from to participate in the life of a village and to understand its dynamic is not easy. And designing this process is a lot of work. For several years, we have been designing processes for welcoming and integrating people in a way that neither the new people nor those already here ends up exhausted, so that it isn't a waste of energy and doesn't create conflict [INA_E3].

In Renewable Energy Cooperatives, the situation is different. Opting for departure is much easier. If at any time a member no longer identifies with the community's path, they can decide to leave it and take a different option. There is also the possibility of returning to the traditional alternatives offered by the Spanish electricity oligopoly. Furthermore, loyalty has sometimes been called into question in the cooperative movement. Low loyalty to the cooperative makes it easier to leave. Although the cooperatives are making efforts to facilitate their members' use of the voice and to promote greater loyalty, it appears, in the current context, that a

mutual awareness stage prior to full membership might not be totally justified. Potential appropriators might consider it too much of a barrier to take the first steps towards moving forward to an energy model change. Cooperatives must therefore act within the boundaries of voluntary action taken by members of a community when they decide to form part of the initiative, and the freedom to join or leave it.

Belonging and Gradualism in Commitment

Within the Energy Commons, the Renewable Energy Cooperatives offer members different levels of commitment, so that they can form part of the community. There is not just one way to participate in initiatives. It is also possible for a single person to sign up to five different membership contracts (CER_E1, CER_E2, CER_E3, CER_E4). That is to say, it is enough for one person to be a member in order for another four non-members to have electricity supplied by these cooperatives. As long as there are some members in the area, it is possible to access this energy through them without having to commit to the cooperatives, their assemblies and their participatory dynamics. This gives rise to the question of whether an initiative can be considered communal if it does not actively promote greater involvement of citizens in its decision-making, beyond promoting ethical energy consumption.

It is a valid question, whether a Commons must aim to involve all stakeholders in decentralised and cooperative decision-making. In this regard, considering the infinite variety of fields in which people may decide to participate actively and the evident limitation on available time, perhaps it is impractical for all the Energy Commons to seek the complete involvement of everyone who is directly or indirectly affected by their activity. It may be enough for them to be governed by those who are most involved with the practice in a way that is democratic, decentralised and open to external suggestions. In the case of renewable energy cooperatives, the latter connects with the possibility of being a customer without having to be a member. Allowing individuals close to the member the opportunity to benefit from cooperatively managed energy consumption could enhance its impact towards an environmentally just and sustainable energy transition.

Regarding the possibility of forming part of the community, at any level of membership, the majority of the initiatives we interviewed

demonstrate great versatility and offer several levels of involvement (INA_E2, INA_E4, INA_E5, INA_E6). The relevance of each of those options is debated internally but they certainly provide the mechanisms needed to appeal to people who are sensitive to different democratic methods of producing, distributing and consuming energy.

> (…) it is true that we work with two different circles. We have a closer circle of campaigners, which manages all the information, makes decisions and drives activities. And then there is a slightly wider circle of people who come and go, and participate in what they can or what interests them, but not in everything. And of course, there is movement from one circle to the other. But there is an informal distinction between the two circles [INA_E5].

Only the *Communities for life* (INA), which entail almost complete immersion in both productive and internal activities, struggle to design a range of simultaneous levels of participation and involvement. In these initiatives, gradualism is achieved over time, going from lower to higher levels of social and material immersion in the community.

> [New appropriators] first take part in assemblies as observers, and the same goes for the emotional spaces. About a year and a half in, there is a review of how the process is going. After that time, around two years in, depending on how the process is going, the person can start to participate in the shared economy and the assemblies [INA_E3].

Thus, in these initiatives, the *Voice* response as defined by Hirschman does not encompass all its facets from the moment of incorporation into them.

Economic and Financial Sustainability and Belonging

If we focus on the financial dimension, paying a fee is a key requirement for membership of a significant proportion of the initiatives we analysed (CER_1, CER_2, CER_3, CER_4, CER_5, ESO_1, ESO_2, INA_E1, INA_E4). Although they are considering and implementing different ways of including people who are not able to pay it, in general terms, all the renewable energy cooperatives and social enterprises require payment in order to participate fully in the community.

In the case of renewable energy cooperatives, it is even a legal condition because they have to ensure sufficient initial capital to operate in the sector. This is the reason behind their requirement of a minimum of €100 for membership. It is difficult to break away from such conditions, when our economic system relies on capital as the mechanism to verify a business initiative's solidity and durability.

Providing financial guarantees to a cooperative are, at the beginning at least, the financial requirements to become a full member.

> We do not want to have more contracts than we can support in the market. When I started here, I asked why we had to pay that amount of €100. It was the risk capital you needed to offer as a guarantee to buy a contract for a month or two, which was the billing period [CER_E4].

Some cooperatives accept the tension that exists between, on the one hand, the possibility of being a renewable energy consumer simply in a supplier-customer relationship and, on the other hand, the intention to promote members' greater involvement and participation through their position as full partners. Collective reflection on the best way to transition towards an alternative energy model involves choosing between different paths. Is it enough, today, to ensure that more and more people consume renewable energy, produced in a decentralised way or through non-profit initiatives? Or do we also need to add, from the start, associative formulas that facilitate greater involvement, participation, empowerment and commitment among consumers? The aim to position citizens at the centre of a socially and environmentally fair energy model inevitably leads them to grapple with this sort of dilemma.

> A few months ago, it was suggested that (...) we could be allowed to take on customers who are not members. Within this, some people argue in favour of opening up completely. Sometimes the €100 is an obstacle. It might be psychological or it might be that a person genuinely reaches their spending limit every month and can't afford it (CER_E2).

The social enterprises we analysed are similar. One of the main lines of action is to collectivise energy production and consumption, and anyone who is interested in contributing to a change of model to one where citizens are at the centre of the project is welcome (ESO_1, ESO_2). Similar to renewable energy cooperatives, social enterprises in the energy sector must focus on reducing entry barriers and promoting autonomy and commitment among citizens in decision-making. This is essential to continually expand the adoption of fairer energy production and consumption practices. Even so, in Spain there are already renewable energy cooperatives that have achieved the size and the capital needed to lift the requirement for an initial payment of €100 (CER_E2). There are also other cooperatives that, assuming they reach the necessary size, demonstrate the intention to lift the requirement of initial capital in order to participate in the initiative (CER_E4).

(...) We are interested in having more people, because people come along to begin with and become customers without much conviction, but then they get their bill and they get the report of what the cooperative is doing and, a posteriori, they start to get more involved and participate more [CER_E2].

The available income of potential appropriators as a barrier to joining the community is a recurrent theme in the initiatives' reflections on the diverse forms of belonging. The need to have this financial ability has also partially reached the self-managing communities for life as a condition for joining the community. Two of the six practices require the payment of a sum of money to join the community, whether the intention is temporary or permanent (INA_1, INA_4). All of the Energy Commons we studied are managing the tension between the barriers caused by the market economy and the desire to include interested parties regardless of their economic or financial circumstances.

The thing is, our aim is not just to sell. We have to go much further. And for us, the fundamental aim is the social part. We have to sell in order for our turnover to produce just enough profit to keep moving forward, but our priority is to be able to help those who don't have as many options, so that they too can live in this world [CER_E4].

All the practices act within the market economy to different extents and at different levels, depending on their own characteristics and aims, whilst also attempting to offer a transformational alternative, to varying degrees according to the evaluation of an occasional observer. Transformational capacity lies in the heterogeneity and confluence of all these initiatives around the same idea, that may be their commitment to building a fairer, more sustainable and more democratic energy model.

Focus on economic inclusion mechanisms

The Energy Commons must address the social, economic and environmental inequalities that occur globally and within their own communities.

On the one hand, everything global [social and environmental injustice] also exists in here. Issues like marginalisation and gender issues, for example, can also occur in here. Maybe on different levels, but these issues are deeply rooted in people [INA_E1].

As economic or financial power is one of the principal forms of exclusion, we will set out the mechanisms that the different initiatives are developing to mitigate it. The Energy Commons implement a range of mechanisms aimed at reducing these barriers. Although in many

cases these solutions are complementary, they depend on the initiative's own characteristics and the stage or phase that it is in. The predominance of some solutions over others is revealed in their discourses. Interesting developments in this regard include the creation of resistance funds based on mutual support and solidarity (CER_E1), the option to donate time instead of money money (INA_E1, INA_E2) and close collaboration with the municipal authorities (CER_1, CER_2, CER_3, CER_4, INA_5, INA_6, ESO_E1, ASO_1, ASO_2, ASO_3).

This cooperation between communities and public administrations arises constantly, even when the communities have enough economic capacity to offer their own solutions apart from those offered by the second ones (CER_1, CER_2, CER_3, CER_4, CER_5, ESO_E1). This work they are undertaking with the public administrations and social organisations to reduce energy poverty confirms their inclusive intentions.

It is interesting that the initiatives themselves emphasise on the fact that the practice itself, the experience is what is shared, not a specific good (ESO_E1, INA_E1, NA_E2, INA_E5, INA_6). They place participation, not goods, at the centre of government. As far as it is economically possible, they try to find an option whereby anyone with a genuine interest in and commitment to involvement and participation can belong to the community.

> The only aspect that we have not mentioned, and which truly matters to us in everything we do, is what we call 'living well'. (...) We perceive our commonalities as a shared experience, rather than merely shared goods [INA_E5].

A fundamental part of the common praxis is the configuration of mechanisms that can recognise, manage and integrate diversity. Not just because of the inherently open aims of the Commons, but rather, for the survival of the communities themselves. In addition, being geared towards action, the Energy Commons are aware that they cannot function without specific collective attention to diversity and the different stages of dependence that we all face throughout our lives.

Connection between energy as a social good and the community

The connection between energy as a social good that must be governed communally and the community responsible for it is articulated through the physical and/or virtual territories. In addition, the energy production and distribution model and, as a consequence, the technology used to manage it, also have a direct influence on the

relationship that the community establishes with energy as a good. Relocalisation and the implementation of decentralise and distributed energy systems shape the group's behaviour, and vice versa. The energy model therefore becomes another one of the elements that contribute to defining the types of connections that emerge between the good and the community.

Territory and Production (and consumption)–possibility frontier

The Spanish Energy Commons are tending to produce their own energy. The relocalisation of energy production inevitably shows them the Production-possibility frontier in their own territories. It is necessary to be aware of this ceiling in order to understand that the common initiatives in the energy sector are closely connected to the territory. In other words, even if it is not the current situation, if more and more members joined these communities, they would inevitably reach spatial and material limits.

> We have several peculiarities as a project. In our case, we are quite open to new people joining, and the limitation is going to be the space itself. As long as we have space, we'll be open [INA_E1].

In this way, the initiatives add the other dimension that must be insisted on: reducing the community members' energy consumption would allow a greater number of appropriators to join and would entail a more environmentally sustainable collective behaviour. These concerns and proposals that the Energy Commons express could offer a possible opportunity to foster and strengthen the values of sufficiency and self-containment as an alternative to incessant consumer growth. Energy management that is closer to local needs and issues appears to facilitate the adjustment of production and consumption.

The territory as a container for social and cultural capital

The emergence and consolidation of the Energy Commons has been influenced by each region's peculiarities. This is expressed by the initiatives that emerged in Autonomous Communities without a well-rooted cooperative tradition (CER_E3, CER_E4).

> (...) We are aware that in our land, Cantabria, the feeling of cooperativism isn't the same as in our neighbouring land [the Basque Country] or in Catalonia. And we have

that too. That's another thing that has stopped us from growing at that supersonic pace [CER_E4].

The participatory culture and involvement of citizens influence the progression of initiatives. The level of involvement of the local community can either facilitate or hinder the consolidation of participatory and democratic practices in energy governance, which is aimed at enhancing human autonomy.

> (...) We think people from the community itself have to be involved for this kind of project to have greater acceptance. (...) So, we think that acceptance works if we integrate those communities, in such a way that they feel that there are benefits for them [ASO_E1].

Some initiatives choose to distribute the property in order to achieve greater citizen participation and involvement. This is the case of the renewable energy cooperatives and of certain actions taken by social enterprises and organisations in the social arena. However, there are initiatives that opt for a totally opposite direction (INA_E1, INA_E3, INA_E5, INA_E6). In a large part of the lifelong self-managing initiatives, involvement does not derive from shared property, but rather, collective ownership.

> Here, the basic concept is that everything is shared. Then there are some things that are more personal, your more intimate belongings such as your clothes, your mattress, your wardrobe, your phone or your computer if you have one (...). For example, everything that might be considered premises, like cars or land, we think is all shared. (...) We believe more in management on the basis of sharing. More than this is mine, that's yours [INA_E3].

The intensity of what is or isn't shared is also conditioned by the very nature of the self-managing initiative. Indeed, some lifelong communities have gradual commoning processes for the personal goods that each member brings to the project with them (INA_E3).

Between the need for and the insufficiency of distributed technologies

The technology used in the production, distribution and consumption of energy offers the option to implement different models for governing energy, including different sizes of community (Kojonsaari and Palm, 2021; Pinson *et al*., 2017). According to the initiatives themselves, energy distribution technology and the democratic government that it permits have the power to transform the relationship between consumers and energy as a good.

> The energy framework we had in the 20th century was this one [a centralised one]. It is now shifting, or starting to shift, towards a distributed framework. I think that, on a social level, a distributed one is fairer. It means that energy stays more in the hands of the public, regardless of whether we are in a liberalised model or not [CER_E2].

The distributed model has a democratising power by placing the citizens at the centre of the equation, and all the initiatives we consulted make the case for this. Some of them have even made decisive steps in this direction (CER_E2, ESO_E1, ESO_E2). However, the emergence of new technologies that can decentralise and relocalise energy generation do not automatically guarantee that they will entail a democratic process with the citizens at the heart of the model. This is what A. Gorz theorised as the *technology crossroads*, which allow several social developments and therefore are trying to be controlled by the economic oligarchy (Martínez, 2014). Indeed, in Spain's case, we must be aware that a decentralised and distributed model could remain in the hands of the electricity oligopoly. The initiatives are therefore aware that distributed technologies need to be accompanied by participatory actions.

> In 2009, we began to explore what we could do differently. At that time, technology had advanced, but what was lacking in our country was consideration for the local population in areas where wind power projects were implemented, as they were developed solely with business-focused criteria. Therefore, we decided to launch the idea of a participatory project [ESO_E2].

Social transformation towards more democratic and participatory systems could be supported by technological progress, but the latter alone is insufficient. The initiatives have the mechanisms and modes of government they need for citizen emancipation from the subordination and dependence of centralised models. The *common* government of the self-managing initiatives (INA_E1, INA_E2, INA_E3, INA_E4, INA_E5, INA_E6), the statutory provisions of initiatives that opt for cooperative status (CER_E1 CER_E2, CER_E3, CER_E4), and even those that have chosen enterprise models with horizontal forms of government (ESO_E1, ESO_E2), demonstrate the diverse manifestations of what is *common* in the pursuit of greater human autonomy and social and environmental justice.

Conclusions

With regard to governing the Commons, this research offers a rich and meaningful qualitative analysis that enables a better understanding of how

the European Energy Communities are developing in Spain. These results not only allow the communities themselves a better understanding of the implications of their work, but also gather valuable information with which to develop Spanish and European policies to advance the energy transition.

This paper demonstrated the strengths and limitations of the Commons in governing a fundamental good such as energy. Regardless of their legal status, the Energy Commons in practice embody their belief in a more inclusive energy sector, in which access to energy is fairer and more democratic. However, people in financially precarious situations also have difficulty joining these communities. Despite the measures the initiatives have taken, the public administrations still need to be actively involved in order to ensure access to energy for all.

By adopting participatory but agile and flexible modes of government such as *sociocracy*, and through their commitment to relocalising energy production, the Energy Commons have the potential to reveal a region's limits on production and, even more interestingly, consumption. Determining these limits may facilitate the creation of societies based on values such as sufficiency. In the case of the Energy Commons, this transformation brings with it the universal principles of human autonomy, social justice and ecology. This marks a radical difference from building self-absorbed initiatives that only act with solidarity towards the members of the community itself.

The roll-out of distributed energy technology is not sufficient to place people at the centre of the energy model. This is something the Energy Commons are keenly aware of. In fact, they work actively to place decentralised production and consumption in the hands of the citizens, whether through property or shared ownership.

The European Union's strategic commitment to creating and consolidating Local Energy Communities is accompanied, in Spain, by the formation of collective initiatives based on participation and cooperation, which champion a fairer and more inclusive energy model. They offer democratic forms of government that provide an alternative to the traditional private and market-based, or public and state-owned solutions. Further qualitative analysis and quantitative investigation of the contribution to greater and more sustainable access to energy, as well as comparative studies across different European regions, would certainly complement the significant results that this paper presents.

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Annex

Figure 1

Addressed analysis fields
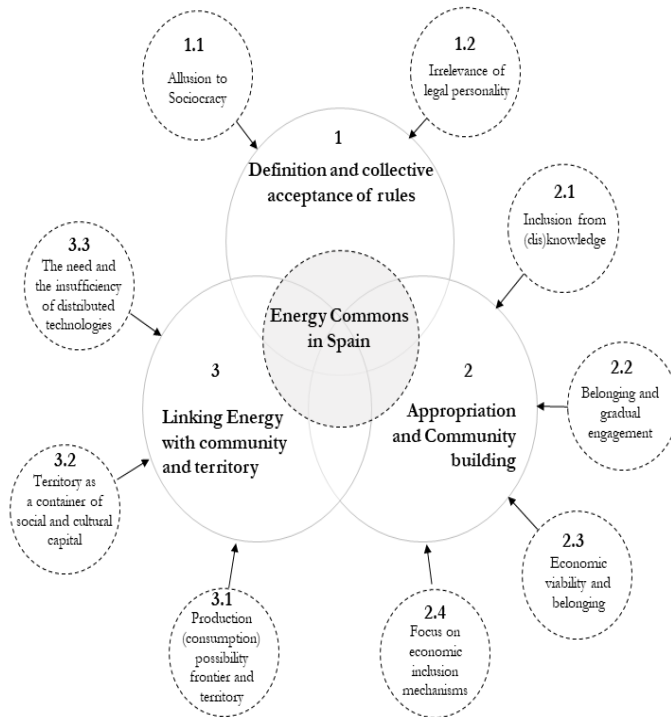
Source: Authors' own elaboration based on the structure and contents of the research.

Table 1

Summary table and codification of initiatives analysed

Interview code	Initiative	Description
Self-managed communities for life		
INA_1	Arterra Bizimodu	A community that strives to become a reference in the research and education towards sustainable and resilient development models. For more information, visit: https://arterrabizimodu.org
INA_2	Cardedeu en Transició	It is based on cooperation and community and its goal is to create an active, committed network in order to achieve a resilient, quality of life as an alternative to the system. For more information, visit: https://cardedeuentransicio.wordpress.com/
INA_3	Lakabe	A reference in counter urbanization, rural occupancy, eco-villages, community life and green living. For more information, visit: https://www.lakabe.org/
INA_4	Sunseed	A non-profit organisation which develops, demonstrates and disseminates sustainable alternatives. For more information, visit: https://https://www.sunseed.org.uk/
INA_5	Transición Rompe el Círculo	It does not only strive to foster a transition like the one taking place in many places around the world, but it also wishes to do so by experimenting with non-capitalist ways of organisation of the economic, social and cultural life. For more information, visit: https://institutodetransicion.rompeelcirculo.org/
INA_6	Astra	A self-governed space, which fosters direct citizen and social fabric participation in the management of a public, community-based space. https://astragernika.net/
INA_7	Observatorio Crítico de la Energía	A forum to discuss and analyse the unsustainability of our current energy and economic model. For more information, visit: https://observatoriocriticodelaenergia.org/

Interview code	Initiative	Description
Renewable Energy Cooperatives		
CER_1	Goiener	An energy generation and consumption cooperative which seeks to achieve energy sovereignty. For more information, visit: https://www.goiener.com/
CER_2	Som Energía	A green, non-profit, energy consumption cooperative, committed to fostering the transition of the energy model to 100% renewable energies. For more information, visit: https://www.somenergia.coop/
CER_3	Megara	A 100% renewable electricity cooperative. It views itself as green, social, local and economical. For more information, visit: https://www.megaraenergia.com/
CER_4	Solabria Enerplus	A non-profit cooperative who strives for an energy model that puts people and the planet before financial gains. For more information, visit: http://www.solabria.es/home/
Social enterprises		
ESO_1	Ecooo	A non-profit institution which uses profits towards the creation of social fabric, and outreach and awareness campaigns on the transition towards an energy model based on savings, efficiency and renewable energies. For more information, visit: https://ecooo.es/
ESO_2	Eolpop	An initiative that aims to install a wind turbine of shared ownership among citizens who voluntarily donate the money required to bring this project to life. This project was the first of its kind in Spain and represents a model of social, political and economic integration. For more information, visit: http://www.viuredelaire.cat/en/what-is-eolpop.html
Municipal initiatives		
IMU_1	Barcelona Energía	A public electricity distributor responsible for the integral management of renewable energy generation for the city of Barcelona, including self-sufficiency and the sale of surplus production. It is also involved in the refurbishment of buildings and the reduction of energy poverty. For more information, visit: https://www.barcelonaenergia.cat/en/

Interview code	Initiative	Description
IMU_2	Rubí Brilla	One of the strategic projects spearheaded by the Townhall of Rubí whose mid-term objective is to ensure the leadership of the project is shared by the different stakeholders who make up the city and who take ownership of the project and are involved in the decision-taking process. For more information, visit: https://www.rubi.cat/es/ayuntamiento/proyectos-estrategicos/rubibrilla
Associations and foundations		
ASO_1	Amigos de la Tierra	A non-profit environmental association whose mission is to foster a local and global transition towards a fair, inclusive society respectful of the environment. The association is composed of individuals who defend social and environmental justice. They firmly believe people and the planet need to be at the heart of policies. For more information, visit: https://www.tierra.org//
ASO_2	Fundación Desarrollo Sostenible	It sustains that the best way to democratise the Spanish electrical system is by achieving self-sufficiency with a net balance, and subsequently fostering savings, efficiency and the participation of any citizen. It strives for a more prosperous world, with greater human development and where social equality, democratic participation and solidarity prevails among the different nations and territories. For more information, visit: http://www.fundaciondesarrollosostenible.org/
ASO_3	Fundación Renovables	Founded on the principal of creating a broad social base and its primary objective is to raise public awareness about the need to implement and accelerate the energy model transition based on the guiding principles of savings, efficiency and renewable energy. For more information, visit: https://fundacionrenovables.org/

Source: Authors' own elaboration based on the information provided by the initiatives' official websites.

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