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## **Social innovation for a new energy model, from theory to action: contributions from the social and solidarity economy in the Basque Country**

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This paper sets out to analyse organisations in the Social and Solidarity Economy (SSE), working in the field of energy provision, and their contribution to the so-called energy transition from the perspective of social innovation. By showing the practical application of the concept of social innovation and its convergence and synergies with the SSE, we review the extent to which Basque Renewable Energy SSE alternatives are experiences that incorporate socially innovative elements. In addition, we study three cases through these approaches in order to observe the real and potential benefits that experiences based on social innovation can bring to energy transition.

The main contribution of our research is to analyse the means by which certain initiatives are implemented through projects framed using the most prominent theoretical models focused on energy transition, social innovation and a social and solidarity-based economy, all aimed at achieving a low-carbon society.

**Keywords:** social innovation; social and solidarity economy; energy transition

**JEL:** B55; O35; Q49

### **1. Introduction**

Our societies are searching for new energy models in order to maintain living standards but reduce the harm caused to the environment. The transformation process from one model to another is called transition. Energy transition refers to a significant structural change in the energy system. The energy transition of the twenty-first century is towards a more sustainable energy system based on efficiency and low-carbon sources (Bridge et al. 2013). Local communities in both developing and developed countries are being transformed by challenging their traditional identity as passive consumers to active prosumers who both consume and produce (Koirala et al. 2016; Lavrijssen and Carrillo 2017). Community initiatives for transition to sustainable energy can be defined as decentralised, non-governmental initiatives of local communities and citizens to promote the production and consumption of renewable energy (Oteman, Wiering, and

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Helderman 2014). Local community energy initiatives and projects can involve very different legal and financial models of ownership (Van der Schoor and Scholtens 2015). Some attention has been given to the institutional form of community energy initiatives and projects in different national contexts (e.g. Slee 2020; Mirzania 2018; Becker, Kunze, and Vancea 2017; Van Veelen 2017). Becker, Kunze, and Vancea (2017) analyse cases from different countries (Germany, UK, Italy and Spain) concluding that there are different collective forms of organisation such as cooperatives, informal associations, and participatory public utilities, but ‘the dominant institutional architecture for community renewables in Europe is the cooperative’ (Becker, Kunze, and Vancea 2017, 159). These cooperatively-owned organisations can constitute a substantially different model of energy provision and distribution (Schreuer and Weismeier-Sammer 2010). SSE entities are private, democratically-organised enterprises with autonomy for decision-making and freedom of membership, where the distribution of profits is not linked to the contributed capital and where economic relations are based on fairness, cooperation, reciprocity and mutual aid (Monzón and Chaves 2008; Pérez de Mendiguren, Etxezarreta, and Guridi 2009; Monzón and Chaves 2012). The SSE brings together cooperatives, mutual societies, associations, foundations and other organisations that share the same identity (Pérez de Mendiguren and Etxezarreta 2015). We believe that there are three main features of SSE organisations that lead them to play a core role in many social innovations: i) their emancipating nature, in that they empower vulnerable groups; ii) the fact that they are hybrid organisations, open to multi-stakeholder governance structures, which facilitates new collaborative relationships; and iii) the fact that they are essentially economic projects with a clear social vocation and a high societal impact.

The Basque Country, an autonomous community located in northern Spain, is not an exception in the search for a tailored low-carbon energy model. With a population of over 2.18 million inhabitants, – population density of approximately 300 inhab/km<sup>2</sup> (Eustat 2019a)–, and a GDP per capita of 33,835€ (Eustat 2019b), the community presents a greenhouse-gas (GHG) emission rate of 8.63 eq-t CO<sub>2</sub>/year/inhab., with a CO<sub>2</sub>/GDP-PPC unit index 20% lower than UE-28 average (IHOBE 2018).

A guiding research framework (in Europe) has been the multi-level perspective (MLP) approach to socio-technical transitions that emphasises structural innovation in energy systems (Bridge et al. 2013). The (MLP) is a middle-range theoretical perspective that conceptualises overall dynamic patterns in socio-technical transitions (Geels 2011, 2019). Recent studies apply MLP to analyse community energy (see e.g. Capellán-Pérez, Campos-Celador, and Terés-Zubiaga 2018; Hölsgens, Lübke, and Hasselkuß 2018; Wainstein and Bumpus 2016).

There are few studies that use social innovation as a framework for direct analysis of community energy (Hewitt et al. 2019). However, in recent years, there has been an increase in research studies focusing on social innovation (e.g. Hoppe and de Vries 2019; Boomsma et al. 2018; Sung and Park 2018; Kooij, Lagendijk, and Oteman 2018). The latter includes a definition of social innovation in energy transition based on a literature review: ‘innovations that are social in their means and contribute to low carbon energy transition, civic empowerment and social goals pertaining to the general wellbeing of communities’ (Hoppe and de Vries 2019, 4). There are various theoretical perspectives on social innovation, but we focus on the one put forward by the Crises Institute<sup>1</sup> because of its clear link with SSE-related experiences (Bouchard 2013) and its suitability for the practical applications analysed below.

The aim of this paper is to review the main contributions made by organisations in the SSE working in the field of energy transition, from the perspective of social innovation

characteristics in the Basque Country, in order to make a contribution to both the scholarly and practitioner literature. In addition, we aim to answer the main research question: what are the real and potential benefits that experiences based on social innovation can bring to energy transition? We observe whether these contributions are linked to an energy transition based on energy justice and energy democracy.

## **2. Social innovation and the energy transition: a social and solidarity economy approach**

### **2.1. *Towards the energy transition: energy democracy***

In a context of constant environmental problems, social innovation may be a necessary driving force for energy transition (Bridge et al. 2013; Capellán-Pérez, Campos-Celador, and Terés-Zubiaga 2018; Lowitzsch 2019). The model of development in modern industrial societies, in which energy, food and goods are produced in a centralised fashion with large structures set up to solve large-scale needs, has had an enormous impact on the environment. But the burning question is not its continuity but whether it can be transformed via an orderly transition (through the planning of other ways of producing, consuming and living) or via a disorderly one (growing inequalities, systemic disorder and social conflicts sparked by the fight for ever-scarcer resources) (Azkarraga and Altuna 2013).

Here we examine the case of energy transition which, in the past few decades, has come to be linked to sustainability (Meadowcroft 2009; Urkidi et al. 2015). In other words, it deals with a change in the energy model, with a focus on the community and on its relocation based on local production and lower consumption (Bermejo 2013; REScoop.EU 2015; Rommel et al. 2018). The issue is not just one of replacing fossil fuels and nuclear power by renewables (certain non-renewable materials are also needed in the use of renewables) but of scale and of reviewing the way in which they are developed: consumption must be decreased if a model is to be renewable and environmentally sustainable (Urkidi et al. 2015; Sheng 2019).

Basically, a reasonable solution entails strengthening the development of smaller-scale, self-organised, decentralised structures that tend towards self-sufficiency and can raise the quality of life while using fewer resources. Decentralised governance of natural resources can be considered one of the key strategies for promoting sustainable management of natural resources at local level (Umutoni et al. 2016; Lyakhov and Gliedt 2017).

In addition, there is a growing social trend regarding the active involvement of citizens and communities in the exploitation of ‘common goods’, rather than passive consultation or advocacy (Huybrechts, Creupelandt, and Vansintjan 2018).

Thus, the concept of energy democracy has been growing in importance. This concept encompasses two key dimensions (Van Veelen and Van der Horst 2018). Firstly, the energy system, as well as our economy and society, should become more inclusive, equitable and low-carbon, given that energy is a basic good like food. Secondly, political power and decision-making regarding energy issues should be more devolved to a local level, creating a more direct relationship between consumption and production. The term democracy often implies a focus on the procedures and mechanisms associated with decision-making. From this point of view, democracy is primarily regarded as playing an instrumental role in discovering and implementing demands for energy justice. The concept of energy justice provides, firstly, an opportunity to explore where

and how injustices occur, to recognise new sections of society and to develop new processes of prevention and remediation. Secondly, energy justice provides a new framework for bridging existing and future research on energy production and consumption when whole energy system approaches are integrated into research designs (Jenkins et al. 2016). In this sense, universal energy justice can be defined as a global energy system that distributes evenly both the benefits and burdens of energy services, and one that contributes to more representative and inclusive energy decision-making (Sovacool et al. 2017). This perspective evaluates (a) where injustices lie, (b) which affected sections of society are ignored, (c) which processes exist for their remediation in order to (i) reveal, and (ii) reduce such injustices (Jenkins et al. 2016). In essence, the energy justice perspective implies a need to move towards human-centered, social science explorations of energy developments (Sovacool 2014).

Returning to the subject of our analysis (Basque Country), the idea is to shift from the current Spanish oligopolistic energy model (Morales de Labra 2014), in which both generation and distribution are controlled by a handful of large multinational companies, towards a more decentralised, citizen-owned, democratic, efficient, sustainable model in which the essential actors are social movements, cooperatives and municipal authorities (Bermejo 2013). It is against this backdrop that we must frame the proposal for energy sovereignty, which is a concept that questions the control of resources, the repercussions of the energy model on individuals and the environment and who should have the power to make decisions on all these issues. Effective decentralisation emphasises the interplay among recently decentralised technologies, modes of organisation, and decision-making (Becker and Naumann 2017).

One of these modes of organisation is the presence, worldwide, of cooperatives for renewable energy (known as REScoops), which is an example of active citizen engagement in the energy transition (Hoppe et al. 2015). REScoop is the abbreviation for Renewable Energy Source cooperative, but community energy initiatives can also be considered as REScoops and do not necessarily have the legal status of a cooperative (see e.g. Coenen et al. 2017; Heras-Saizarbitoria et al. 2018; Huybrechts, Creupelandt, and Vansintjan 2018). Some of them provide their members renewably-generated energy within a cooperative model that enables members to co-decide on the cooperative's projects, principles and future. REScoops do not only collectively own renewable production facilities and supply energy to their members; they also use their specific position as energy suppliers to take several actions to persuade their members to save energy (Coenen et al. 2017).

REScoops encourage people to take a longer-term view by creating common expectations and providing a more sustainable basis, as locally embedded development agents. Moreover, community project ownership helps overcome public opposition facing renewable energy development such as wind-farms, thereby increasing uptake. Indeed, the rise of REScoops can be partly explained by the dissatisfaction of consumers and citizens and their will to better control the geographical and technological origin of their energy and to keep production in the hands.

The common aspects shared by the very different types of REScoops are the principles of the International Co-operative Alliance (ICA) guidelines, which are the following (Coenen et al. 2017; Heras-Saizarbitoria et al. 2018): (1) Voluntary and Open Membership; (2) Democratic Member Control; (3) Member Economic Participation; (4) Autonomy and Independence (5) Education, Training and Information; (6). Co-operation among Co-operatives; (7) Concern for Community. These are closely linked to the principles that guide those of the SSE, defined on the basis of democracy, non-profit-making,

solidarity and independence from public authorities (Monzón and Chaves 2008, 2012). Based on Coenen, Hoppe, Chalkiadakis, Akasiadis and Tsoutsos' work (2017), Soeiro and Ferreira (2019) summarised the aspects in which Rescoops add value, as shown in Table 1.

## 2.2. SSE: a concept that is still developing

The concept of 'social economy' has been around for a long time in academic literature and has a clear international reference point in Ciriec-International, which proposed the definition of the term that is most widely accepted at institutional level, given that it is based on a broad political and scientific consensus and is accepted by the EESC (European Economic and Social Committee). It is worded as follows (Monzón and Chaves 2012, 23):

The set of private, formally-organised enterprises, with autonomy of decision and freedom of membership, created to meet their members' needs through the market by producing goods and providing services, insurance and finance, where decision-making and any distribution of profits or surpluses among the members are not directly linked to the capital or fees contributed by each member, each of whom has one vote, or at all events take place through democratic and participative decision-making processes. The social economy also includes private, formally-organised organisations with autonomy of decision and freedom of membership that produce non-market services for households and whose surpluses, if any, cannot be appropriated by the economic agents that create, control or finance them.

These private, formally-organised enterprises with autonomy of decision and freedom of membership, where the distribution of profits are not linked to the capital contributed, are democratically organised into two subsectors: market and non-market (Monzón and Chaves 2008; Pérez de Mendiguren, Etxezarreta, and Guridi 2009; Monzón and Chaves 2012).

Table 1. REScoops added value.

Factor	Added Value
Scale level of activities	Operate close to citizens, increase their efficiency, and inspire energy savings
Capacity and critical mass	Contribute to energy savings as they have a certain critical mass to acquire the necessary expertise and motivate and assist citizens who are less motivated than those who are devoted to pursuing sustainability goals.
Social network argument	Are in an excellent position to share and link their activities, including their energysaving actions, with other local actors (schools, sports clubs, local business firms and housing associations)
Awareness raising and education	Are in a good position to make their consumers more aware of energy use. They can also educate the larger community on the importance of energy efficiency by organising.
Social norms	Promote energy saving goals and average group energy-saving behaviour (i.e. as a reference point for behaviour).
Trust	Are in a good position to generate trust towards citizens for them to take measures themselves and invest in energy efficiency or RE technology appliances.
Commons argument	See the energy produced by them as a common good.

Source: Soeiro and Ferreira (2019) based on Coenen et al. (2017).

The concept of the ‘solidarity-based economy’ originates from the common core of the social economy in an attempt to rethink economic relations as a whole, building up production, distribution, consumption and financing relations based on fairness, cooperation, reciprocity and mutual aid (Pérez de Mendiguren, Etxezarreta, and Guridi 2009). The solidarity-based economy is therefore a phenomenon that brings together different economic, social, political, cultural and environmental facets to build up an ‘ethical life project’ (Da Ros 2007).

Indeed, many of its practical experiences point to elements of the discourse and institutional and organisational forms typical of the social economy (Pérez de Mendiguren, Etxezarreta, and Guridi 2009), and manifest themselves in all areas of the economic process, seeking to ensure the sustainability of life and the democratisation of the economy and its processes (Coraggio 2011).

The solidarity-based economy also takes the perspective of thoughtfulness and reflection as a basis for looking at the debate on social change, the construction of alternative economic models, alternatives to capitalism and ways of combating poverty and social exclusion. It advocates a plural economy capable of bringing together the three economic principles set out by Polanyi (1944): the market principle of exchange, the non-market principle of redistribution and the non-monetary principle of reciprocity, calling into question to some extent the core role of markets as the main spaces for the assignation of goods and services (Pérez de Mendiguren and Etxezarreta 2015). The question, then, is one of giving the economy back its roots in its surrounding environment. This has clear political consequences, as it would entail re-socialising and re-politicising the economy as the human activity that it actually is (Pérez de Mendiguren and Etxezarreta 2015). In short, with the recognition of a plurality of economic principles ‘the logic of the market is not permitted to operate as the sole, self-regulating principle of economic and social life’ (Azkarraga and Altuna 2013, 35).

With these ideological assumptions, the solidarity-based economy is seen not as an independent sector but as an intermediary sector capable of hybridising and managing within it the three areas of operational logic mentioned above (Defourny and Pestoff 2008). Politically, it relies on ‘resisting the dominant tendencies of capitalism’, fed by contributions from social transformation movements such as feminism and environmentalism, among others (Pérez de Mendiguren and Etxezarreta 2015).

Consequently, initiatives that emerge from core sectors for the development of today’s capitalism, such as the financial system, the agri-food sector and the energy sector (which is examined here) are especially important. They are the bearers of new directions and new models of post-capitalist development, put forward by the social economy, which need to be developed by individuals and organisations that operate along the lines of democratising the economy and assuring the sustainability of life (Etxezarreta et al. 2015).

### **2.3. Theoretical framework: social innovation**

In the context of the debate on models of transition to energy democracy, innovation emerges as a key analytical element. Below is an analytical approach to the literature on innovation, and more specifically, on social innovation. Through this approach, we support our proposal of the suitability of analysis of the CRISES institute in our study of the Basque experiences covered in this paper.

Constant and early involvement of citizens increases interest in and commitment to the project and leads to social learning effects as well as lasting changes in behaviours (Bayulken and Huisingsh 2015). The ‘how’ is just as important as the ‘where to’, and



the concept of social innovation establishes the main characteristics of experiences which pursue not only more socially sustainable results but also innovative ways of attaining them. Technology alone will not be able to solve current ecological problems, and innovators have to anticipate the overall acceptance of new technology among society actors (Purtik, Zimmerling, and Welpel 2016).

Innovation studies experienced a social shift in the first decade of the twenty-first century, which has gradually transferred to innovation policies. The technosciences of social innovation seem to have reached a point of broad consensus: social innovations arise in the first instance from civil society, but they can also be generated or implemented by the public sector and by the private sector (Rodríguez-Castellanos et al. 2011; Vicente-Molina et al. 2013). In addition, both the means and the ends to promote them must be predominantly social (Echeverría and Merino 2011). A significant shift in social innovation policies took place in 2004 and beyond, thanks to the Canadian reports (Crises, Goldenberg) and subsequent British studies (Young Foundation, NESTA) (Echeverría and Merino 2011).

Once the new concept was established, two alternative views of social innovation began to emerge: a more utilitarian view which prioritises analysis over the societal value generated (Mulgan et al. 2007) and a more radical view that focuses on restructuring the power relationships that precede or result from social innovations (Moulaert, MacCallum, and Hillier 2013). The argument between these two views converges ultimately in re-formulations of concepts which once again affect both main pillars of social innovation.

At this point the concept of Transformative Social Innovation (TSI) emerges as a valid approach. Haxeltine, Avelino, Pel, Dumitru, Kemp, Longhurst, Chilvers and Wittmayer conceptualise transformative social innovation (TSI) as a social innovation process that challenges, alters, or replaces existing institutions and institutional arrangements *across* the context (i.e. in more than just a single isolated social experiment) (Haxeltine et al. 2016, 11).

Individually and especially as a whole these processes demonstrate the ambition and vision as well as the potential, in terms of their agency capacities, to generate a transformative impact beyond their current territories of their micro-location towards regional and national territories. Its innovative performance is not exclusively or primarily technological and business but organisational and relationship-orientated in national and international cooperation networks. They challenge and seek to transform the rules of the game (institutions) from the spurious competition of labour exploitation to being competitive based on cooperation, complementarity and synergy in their driving coalitions, also in terms of prioritizing the quality of work, gender and age equity and eco-systemic regeneration.

Avelino et al. distinguish four shades of change and innovation: 1) social innovation, (2) system innovation, (3) game changers, and (4) narratives of change (Avelino et al. 2019). The TSI is, for these authors, the resulting interactive and co-evolutionary process between distinct but intertwined dimensions of innovation and change.

This 'middle-range' theory (Haxeltine et al. 2016) analyses how TSI processes lead to transformative change and how social innovation networks, initiatives (from the bottom up) and citizens are empowered. Compared to other analytical approaches to social innovation, TSI not only focuses on the local or 'niche' level but also recognises the system or 'regime' level, which contains elements (such as institutions, social structures and incumbent agents) that strive to maintain the status quo and often constitute barriers to social



innovation and the transformative change it seeks to bring about (Hoppe and de Vries 2019).

In this respect, European institutions describe this type of innovation as a social phenomenon in both its ends and means (European Commission 2010). This conceptualisation finds its origin in the work of the Young Foundation (Murray, Caulier-Grice, and Mulgan 2010) and refers to new ideas that simultaneously address social needs, generate new social collaborations and improve the capacity of society to act in the future. Thus, they are innovations that stand out because of their intangible results, especially in terms of social capital, but also in terms of social cohesion, territorial cohesion, territorial identity, learning and skills or, in those more transformative processes, community and/or vulnerable group empowerment (Avelino et al. 2019; Copus et al. 2017).

Social innovations have thus come to be characterised by three key elements (Ayob, Teasdale, and Fagan 2016): i) they call for new forms of cooperation; ii) they restructure existing power relationships and establish less hierarchical relationships between the government, civil society and citizens; and iii) they have a positive impact on society.

One of the approaches proposed by Hernández, Tirado, and Ariza (2016) fits in with the model developed here. They assert that one of the elements to be analysed in social innovation processes is who manages them. There are studies which see these processes as driven by organisations with social purposes (i.e. governments and not-for-profit organisations) and others which place them in the context of more complex social interactions. There are also scopes of application more closely linked to management economics and others whose main focus is on public sector policies (Beerman and Tews 2017). However, Avelino and Wittmayer (2016) point out that theoretical frameworks and empirical analyses of power in transitions lack precision when it comes to distinguishing between different types and levels of actors. They introduce a Multi-actor Perspective as ‘a heuristic framework for specifying (shifting) power relations between different categories of actors at different levels of aggregation’ (Avelino and Wittmayer 2016, 628). This perspective distinguishes between four sectors (state, market, community, and third sector).

Seeking to bring together these different approaches, we regard social innovations basically as processes led by SSE organisations whose scope of application involves organisational aspects and aspects concerned with the design and provision of public sector policies.

The arguments used to characterise social innovation on the basis of SSE experiences are broad and have been put forward by a great many authors (e.g. Unceta, Castro-Spila, and Gracia Fronti 2016, 2017). We believe that there are three main features of SSE organisations that lead them to play a core role in many social innovations: i) their emancipating nature, in that they empower vulnerable groups; ii) they are hybrid organisations, open to multi-stakeholder governance structures, which opens up space for new collaboration relationships; and iii) they are essentially economic projects with a clear social vocation and a high societal impact.

At this point, our study takes as a reference point the analytical framework put forward by the Crises Institute, a university body specialising in the analysis of social innovation processes in a wide variety of contexts including employment, social policy, territorial dynamics and collectively owned businesses. This Institute states that social innovation processes are ‘an intervention initiated by social actors in response to an aspiration or to meet a need, to offer a solution or create an opportunity for action to modify social relations, transform the framework for action or

propose new cultural orientations with a view to improving the quality and conditions of life in society' (Bouchard 2013).

From this definition, three key elements characterising social innovations can be drawn (Etxezarreta et al. 2015):

- a social innovation proposes new responses to social problems articulated on the basis of new ways of mobilising resources as a result of new agreements or social consensus.
- the participation of community actors and social movements are essential in a social innovation process.
- there is fertile ground for social innovations in a plural economy, i.e. an economy where the state, the market and the scope of the community are all well-defined, so that all three spaces for social integration (reciprocity, redistribution and exchange) have their own, consolidated places.

These three elements give rise to the three dimensions that a social or entrepreneurship process must affect, to a greater or lesser extent, in order to be considered as social innovation, as per Klein et al. (2012):

- governance: this refers to progress in terms of consultation, negotiated agreement, partnership, recognition of the parties involved, deliberation-based democracy and direct democracy.
- co-production and co-construction: this includes the engagement of actors, mainly from social movements, in drawing up public sector policies (institutional level) and in the enablement and provision of services per se (organisational level).
- a plural economy: this focuses on the contributions of different actors to the plurality of forms of ownership and economic development.

Although they are not ends in themselves (given that the ultimate goal is to improve the quality and conditions of life in society), the impacts of any social innovation can be expected to help energeise processes open to participation by multiple actors (governance), the decision-making capabilities of social actors in the design of public policies (co-construction) and the hybridising of resources from various origins in the same process (plural economy).

The idea is therefore to take a more collective approach to social innovation in regard to both processes and results, based always on the impetus provided by social actors themselves and a clear will to transform society (Etxezarreta et al. 2015). This notion evidences a clear link with the logic of SSE actors.

### **3. Methods**

This research uses an exploratory research design in order to analyse the contributions of Basque organisations in the Social and Solidarity Economy (SSE) working in the field of energy transition from the perspective of social innovation. An exploratory research format is used to analyse the various experiences identified, with a multiple case study approach (Eisenhardt 1989; Yin 2009).

The sample used and the subject studied here was taken from the database of REScoop.eu – the European federation of citizen energy cooperatives – to identify energy-related SSE experiences originating in the Basque Country, with the aim of determining target

populations and selecting a sample. In REScoop.eu, as explained in section 2.1., there are very different types of organisations, but they all share a common perspective (REScoop.eu 2020):

REScoop.eu supports the energy transition to a decentralized, renewable, efficient, clean and sustainable energy system with citizens at its core. We refer to the energy transition as ‘the energy transition to energy democracy.’ We believe that REScoops are the most appropriate business model to keep this transition fair and affordable for citizens, and to make sure no one is left behind. REScoop.eu follows up on relevant policy issues.

The Basque Country was selected for case study as it has a great trajectory of cooperativism and SSE that is well known to the authors. It should be noted that the Basque cooperative movement is known worldwide through the experience of the Mondragon Group’s cooperatives (also known as MCC) (one of the world’s largest agglomerations of worker cooperatives) and the group’s internationalised and widely expanded nature. However, there are also a number of other co-operative experiences (as is the case of BARRIZAR and GOIENER Group, analysed below) with a more local scope and linked to the REAS network of Social and Solidarity Economy in Spain, whose principles of action seek to align themselves more clearly and with greater determination with the environmental and social challenges we face today. Then we defined the sample of analysis, which were the REScoop.eu official web sites, to which the two cases studied in this paper adhere.

Analysis of the cases has been done by applying the analytical framework developed in section 2, especially with regard to the concept of social innovation and transformative social innovation (TSI). Of particular interest is measurement of the transformative capacity of the experiences analysed (*A. Goal with social impact*), and so it is important to assess aspects that the TSI perspective highlights. Firstly, the aim of these initiatives must be to achieve a social impact, not only through small local transformations, but also by questioning certain structural and systemic elements (Hoppe and de Vries 2019).

On this basis, we assess how these initiatives affect three key elements necessary to achieve this social impact (*b1 Model of governance; b2 Co-production & co-construction; b3 Plural economy*). These elements have been identified and used by several authors from the Crises Institute (e.g. Klein et al. 2012; Bouchard 2013). They are, in fact, compatible with the perspective subsequently developed by TSI as they not only seek to measure technological or business performance but also give importance to aspects related to the process itself (cooperation networks, internal organisation, empowerment of citizens ...) (Avelino et al. 2017; Haxeltine et al. 2016). Table 2 describes the variables used for the analysis and the source used for each of them, as well as the indicators used for their measurement.

The relevant field work was carried out between June 2016 and February 2020, based on the triangulation of three main data sources. Information on the experiences studied was compiled by means of an analysis for each experience of contents and websites of the organisations involved, interviews and analyses of primary information sources.

Firstly, the method for compiling information on the experiences studied was based on content analysis applied specifically to website analysis (Herring 2010). To do this, the target population was first designated and the sample selected which, in this case, was made up of the official websites of the REScoops initiatives in the Basque Country (see Table 3). We analysed 2 Basque REScoops initiatives which represent 100% of the population under study. Table 3 briefly describes the experiences analysed and the sources used in each case.

Table 2. Key concepts of the scale of social innovation.

SCALE OF SOCIAL INNOVATION	Source	Items analysed
A) GOAL WITH SOCIAL IMPACT	Bouchard (2006, 2013) Murray, Caulier-Grice, and Mulgan (2010) Ayob, Teasdale, and Fagan (2016) Avelino et al. (2017) Hoppe and de Vries 2019	Detection of social needs; creation of new social relationships or collaborations; societal outcome
B) NEW WAYS OF COOPERATION		
b.1. Model of governance	Bouchard (2006, 2012) Klein et al. (2012, 2013) Haxeltine et al. (2016) Avelino et al. (2017)	Consultation, negotiated agreement, partnership, recognition of the parties involved, deliberation-based democracy and direct democracy
b.2. Co-production & co-construction	Bouchard (2006, 2012) Klein et al. (2012, 2013) Haxeltine et al. (2016) Avelino et al. (2017)	Engagement of actors (institutional level and organisational level)
b.3. Plural economy	Klein et al. (2012, 2013) Bouchard (2006, 2012)	Plurality of forms of ownership; economic development

Source: Own work.

Table 3. Sample & information sources.

ORGANISATION	SOURCE
BARRIZAR S.COOP.	<ul style="list-style-type: none"> <li>• The website of BARRIZAR between 09/05/2016-28/02/2019 <a href="http://www.barrizar.com/esp/index-esp.php">http://www.barrizar.com/esp/index-esp.php</a></li> <li>• Interview with one of the promoters of the initiative on 17/06/2016</li> <li>• Continuous e-mail contacts with general and middle manager between 24/05/2016 and 17/11/2016.</li> <li>• Primary sources: material provided by the organisation itself.</li> </ul>
GOIENER GROUP	<ul style="list-style-type: none"> <li>• The website of GOIENER COOP, GOIENER ELKARTEA and NAFARKOOP between 09/05/2016-28/02/2019</li> <li>• <a href="http://www.goiener.com/">http://www.goiener.com/</a> <a href="http://goienerelkartea.org/">http://goienerelkartea.org/</a> <a href="https://nafarkoop.eus/">https://nafarkoop.eus/</a></li> <li>• Interview with one of the promoters of the initiative on 15/06/2016.</li> <li>• Continuous e-mail contacts with general and intermediate manager between 24/05/2016 and 30/10/2018.</li> <li>• Primary sources: experience &amp; access by the authors to unpublished documentation held by the organisation.</li> </ul>

Source: Own work.

Secondly, personal interviews were conducted using recorded video conference and e-mail with general and intermediate managers in order to obtain direct and more nuanced information from them. Research to date has shown that the use of different ways to

conduct interviews produces similar results to those carried out face-to-face (see e.g. Holt 2010). The study of the websites of each entity previously analysed provided information that helped to better structure the interviews to address the elements of social innovation.

Finally, in order to have a more focused and nuanced view, a large amount of documentary material (primary source), both internal and external, was gathered and analysed. The internal documents included information documents, presentation documents and charter principles that defined the vision and specific characteristics of each of the entities analysed. External material included reports from external networks, press releases and policy/regulatory documents at national and European Union level. Recordings of video conferences were reviewed so as to transcribe the most relevant extracts and, similarly, fragments from e-mail responses and primary sources were selected, and the results translated into English.

## **4. Results and discussion**

### **4.1. Context**

A wide range of experiences concerned with energy transition can be found in Spain (Heras-Saizarbitoria et al. 2018), but here we focus on the SSE experiences in the Basque Country region which are linked to REScoop.eu. This federation brings together collectively based initiatives for the production, marketing, assessment, distribution and/or supply of energy from renewable sources in line with the principles of the International Cooperative Alliance (ICA), though they do not all necessarily take the legal form of cooperatives (Riutort 2014).

The electricity sector in Spain is highly dependent on national legislation. It affects the local renewable cooperatives in three main aspects. The first aspect is the legal possibility of creating a new company within the sector, which was not an option until 1997. In fact, the Electricity Sector Law (L54/1997) defined the beginning of the transition from a completely regulated market into a market economy in the electricity sector in Spain: a liberalisation. From this point onward, new and/or international actors could participate in the retailing and generation activities with the freedom to decide where and which technologies to use and what price to set. The second aspect is the legal requirement to manage the retailing, generation and distribution activities by means of different and separated companies. This legal requirement is especially costly to comply with for new smaller companies. In reality, only the retailing and generating activities belong to the market economy; the distribution activity still remains regulated (dependent on national budget and the Energy Ministry). This last particularity resulted in a greater advantage for older companies (who owned the distribution activity with permanent and known incomes) during the years when the separation of activities was being implemented. The third aspect is the priority that the legislation gave to define and regulate the big installations while the development of smaller ones remained in a huge legal uncertainty. It was not until 2011 when the technical aspects for small installations (<100 kW) were defined (RD 1699/2011). Only in 2018 were the economical and administrative aspects established in a way that fostered smaller renewable installations (RD-L 15/2018). Self-consumption was determined in favourable conditions in 2019 (RD 244/2019), and this made many of the projects where social movements could work more economically viable.

Most SSE electricity generators and retailers work on the basis of renewables, decentralisation and energy sovereignty. They offer a range of alternatives for investment in generation from renewables and alternative sales channels for managing electricity bills. But they are also participative forums with broad social bases where it is possible

to cooperate actively in working to achieve a new energy model, over and above participating through investment and/or contracting, and to take part in decision-making processes within the organisations themselves.

Little is known about the innovation process within and around cooperatives and their role as catalytic agents for promoting participatory processes for sustainable lifestyles. Empirical findings show that cooperative communities in general often struggle with consensus-based decision-making as a form of self-organisation and governance (Purtik, Zimmerling, and Welpé 2016).

#### **4.2. Innovative SSE experiences in the Basque Country**

##### **I. BARRIZAR: Cooperative Energy Services Company**

BARRIZAR is a local energy services cooperative set up in 2013 to facilitate the transition from a centralised energy model dependent on fossil fuels to a distributed model based on renewables. It seeks to do this by promoting energy efficiency projects and renewables in the supramunicipal district of Lea-Artibai, though its area of action extends throughout the Autonomous Community of the Basque Country (ACBC). It is open to cooperation on projects at state and EU levels, and seeks to reduce energy dependency by half. It operates by funding projects for renewables and energy efficiency.

Along with this main goal, it also pursues the following secondary (but also important) goals:

- • promotion of the participation of its members
- • transparency and control
- • across-the-board management and proximity in service provision
- • dissemination and training to teach and increase awareness of environmental and energy commitments
- • sustainable local growth and job creation in the social economy
- • cooperation with other cooperatives in working towards shared goals
- • economic and energy sovereignty
- • protection of the environment and biodiversity by reducing emission levels.

There are various forms of engagement with BARRIZAR other than those that might be expected from a cooperative, such as worker members and associate members. For instance, there is 'Friend of BARRIZAR' status, which welcomes participation from people interested in taking part in the various working committees or getting involved in the project by disseminating not only the experience of BARRIZAR itself but also the need to transform the current energy model and promote responsible consumption. 'Friends' take no formal part in the decision-making process, given that they do not hold voting rights in regard to the corporate activities of the cooperative, but they do take an informal part in its assemblies and have full access to information. There is no formal or informal internal body at the organisation set up to manage the participation of Friends. The organisation currently comprises four worker members, 12 associate members (three of which are companies) and 10 Friends.

BARRIZAR defines itself as a social economy organisation in the form of a local cooperative, with a model based on renewable energy sources and with financial backing from contributions by members, funds set up by institutions and/or aids.

Its specific activities are the following:

- promotion and dissemination: participation in talks, presentations, studies and partnerships
- energy diagnoses
- specific energy efficiency projects involving renewables in the public and private sectors
- setting up of facilities for renewables and energy efficiency

As far as possible, it seeks to carry out complete projects involving renewables (micro-hydro-power ( $<100\text{ kW}$ ), mini-wind, solar-photovoltaic and biomass/CHP plants (Basque Energy Agency 2020) and energy efficiency projects (micro-grids, thermal building envelopes, LED lighting (Barrizar 2020a), zoning and control, heat recovery, use of residual heat). It conducts diagnostic studies, draws up proposals, provides funding and implements projects (Zárate 2020). It also manages so-called ‘energy services’ (energy bill management, among others).

BARRIZAR’s operations till 2018 were focused on designing and implementing photovoltaic and biomass/CHP energy generation projects in cooperation with third parties (in the public and private sectors (Barrizar 2016)). There are two options: either the cooperating party is the owner of the facility and makes the full investment, or BARRIZAR funds the facility and manages the bills of the cooperating party, which can choose to take over ownership once the investment is recovered through billing. As a result of legal barriers to entry into the electricity sector for renewable-based generation plants till 2018, BARRIZAR has specialised mainly in hybrid projects involving biomass and stand-alone solar power (thermal and photovoltaic) and energy efficiency (BEA 2020). Nowadays as regulation evolved it works also in electrical self-consumption projects as they are economically more interesting for the customers and the environment (Barrizar 2020b; 2020c).

BARRIZAR belongs to and cooperates with several networks. Apart from its membership of REScoop.eu, it is also a member of PXINME (Platform for a New Energy Model) (Capellán-Pérez, Campos-Celador, and Terés-Zubiaga 2018), which was set up to help ensure well-informed, critical public opinion on the Spanish electrical system. In turn, it supports the energy cooperatives SOM ENERGÍA (from Catalonia) and GOIENER (see below) by encouraging customers and members to switch to certified green energy cooperative retailers.

Currently BARRIZAR is involved in two H-2020 EU projects related with energy transition: HAPPENING and LocalRES.

## **II. GOIENER GROUP: Renewable Energy Cooperative**

GOIENER is a citizens’ cooperative for the generation and consumption of energy from renewable sources. GOIENER strives to help people recover control of this basic asset and to heighten awareness of its importance while promoting responsible and sustainable energy consumption.

To this end, GOIENER operates in the electricity market as a retailer (purchasing/selling) through the cooperative GOIENER S.Coop., in educating and empowering the public through the association (GOIENER) ELKARTEA and in renewable power generation through the cooperative NAFARKOOP S. Coop. This division of operations with different legal forms is necessitated by the compulsory separation of activities under Act 54/1997 (the Electricity Sector Act). Since 2018, all three activities are considered under the umbrella of GOIENER TALDEA (GOIENER Group).



The retailer GOIENER S. Coop., the first tool of the project, is set up as a not-for-profit cooperative. All gains from sales of electricity (from renewables) between its members are ploughed back into the cooperative, and the members decide at its assemblies what the gains should be used for (to develop renewable generation projects, to work gender equity, to reduce prices, to improve services). It comprises worker members, associate members, collaborating members (companies or municipalities that contribute with a slightly higher capital than citizens and are preferred collaborators of GOIENER's members) and consumer members. At the end of 2018, there were almost 10,000 associate members (over 13,000 in 2020) and 12,000 supply contracts (almost 17,000 in 2020), while the energy sold in 2018 reached 55 GWh (estimated 78 GWh in 2020) and the turn-over 8.9 million euros.

The retailer GOIENER S. Coop. also offers to represent producers of renewable energy in selling their output to the electricity market in order to:

- establish close, committed links with them as a representative
- make society as a whole more aware of existing facilities and their locations, particularly those linked most closely with the concept of distributed generation
- make a commitment to acquire the energy managed so as to link it to consumption at the cooperative under the regulated concept of a Guarantee of Origin (GO)
- analyse each case so as to adapt energy acquisition via sales to the market (pool), bilateral contracts or a combination of both.

The associate members of the retailer can also become members of NAFARKOOP S. Coop. and invest in their own renewable generation projects, the output from which is taken up by the sales company GOIENER itself. 2018 was the first year for investments, resulting in 800,000€ gathered from associate members in 8 months, while in 2020 an additional amount of 400,000€ were gathered in less than a month (Nafarkoop 2020a). As a participative aspect, any amount over 100€ was accepted, up to a maximum of 2% of the total investment required. This last measure avoids big capitals controlling the projects. The interest rate given by the investment is set to be no higher than the official currency interest.

The above-mentioned investments were employed by NAFARKOOP in four different ways:

- to purchase one 100 kW hydro-power generation facility, Fagollaga S.A. in Hernani, Gipuzkoa. The annual electricity production there is 450 MWh.
- to finance French-Basque renewable cooperative I-ENER's 6 new photovoltaic installations of 9 kWp each. The expected annual production for all these installations is 63 MWh.
- to buy 10% of shares from a local municipal hydro-power generation company, Oñatiko Ur Jauziak, where 5,400 kW are installed and the annual electricity production is 14,300 MWh.
- to finance the photovoltaic installation of 369 kWp on the roof of 5 schools (ARGI HEZTEN). The expected annual production is 410 MWh

The ultimate goal is for NAFARKOOP S. Coop. to generate an amount of energy equal to the amount that GOIENER S. Coop. consumes, all based on renewables and on the most rational, most efficient possible consumption. So far, the investments made generate nearly 4% of the total energy consumed.

GOIENER TALDEA sees cooperatives as drivers of the economy in their immediate local areas (corporate headquarters and local employment), which is why it focuses mainly on the Basque Country and Navarre even though it has permits to sell throughout the Iberian Peninsula. It has also helped to promote local cooperatives in the rest of Spain, e.g. in Cantabria, Galicia, Soria, Guadalajara and Madrid. An example of this principle of cooperation can be found in the fact that the cooperative has set up a management system based on open access tools that not only speeds up arrangements for registration of members and contracts, but can also be seconded under an SaaS (Software as a Service) framework to other cooperatives, enabling them to start work on sales management at a low cost, with no delays between the process of signing up new members and engaging in economic activities.

There is a large network of around 160 volunteers committed to GOIENER and organised in the form of an association under the name GOIENER ELKARTEA. As part of the structure and functions permitted under law, this association organises thematic work groups and local groups based on critical mass on a given topic or in a given territory. These thematic groups bring together volunteers and workers interested in specific topics such as energy generation, contents translation, energy poverty, gender equality, etc. By contrast, the local groups bring together volunteers and workers whose main task is to respond to local requests and disseminate the experience of GOIENER at a local level, stressing the need for a new energy model and responsible energy consumption.

GOIENER works with and belongs to several networks. Apart from its membership of REScoop.eu and REAS-Euskadi and REAS-Navarra ('network of alternative and solidarity-based economy networks'), it also supports PX1NME, the platform mentioned above in the case of BARRIZAR, and is one of the promoters of UNIÓN RENOVABLES (Union Renovables 2018), the Association of Cooperatives of Consumers and Users of Renewables in Spain, which currently has 19 members. The aim of this last organisation is to progress towards a type of federation for energy cooperatives, with local/regional roots and shared social and environmental values, and to defend its interests in front of public authorities at different levels.

Currently, GOIENER GROUP is involved in four H-2020 EU projects related with energy transition: WHY, CHESTER, POWERPOOR (related to fuel poverty) and BECOOP.

### **III. Social outcome of both experiences**

The consumers (from GOIENER) and contractors (from BARRIZAR) are Basque citizens who want to play a more active role in energy transition. They strive for renewable energy consumption (100% in the case of GOIENER even if it costs more, financially) and, through investment, promote new renewable generation installations (both BARRIZAR and GOIENER). From the energy savings point of view, one of the main activities of BARRIZAR is the analysis of efficiency. Some examples of their work are the reduction of energy consumption by up to 80% at the Rafael Lapeyra factory (Barrizar 2020a), and an energy saving of 40-50% in the municipality of Ispaster by means of the thermal-electrical microgrid (BEA 2020). The energy cooperative, GOIENER, has a slogan: 'the cheapest and cleanest energy is the one you do not consume', which gives some indication of their interest in reducing the customers' energy consumption. In addition, GOIENER advises on electricity contract parameters (Goiener Taldea 2018) and has at least one pilot project with the local cheese-makers (Goiener Taldea 2020a; Latxa Energy 2020).

where a reduction of energy use of 20% is anticipated by means of PV self-consumption installations. Following the introduction of new regulations, the first collective project of self-consumption of renewable energy in schools was launched in 2020 (ARGI HEZTEN) where self-consumption of up to 57% is anticipated (Nafarkoop 2020b). It should be born in mind that all local electrical generation installations reduce the environmental impact caused by centralised grids (which suffer considerable energy losses through transmission lines from the utilities to the destinations of consumption). GOIENER and NAFARKOOP have also been part of a project in the small town of Lizarraga where a local microgrid has been developed by means of hybrid renewable generation (Barrero and Antonio 2019), and this now supplies 70% of the public electricity demand, with no more power cuts when there are storms or extreme weather. It also saves 10,000€/year of the municipal energy budget (EITB 2019).

BARRIZAR is not a retail cooperative so it does not sell electricity. Its focus is on providing renewable energy generation installations and, through this self-consumption of energy, customers can reduce their bills by up to 32%, as is the case in the municipality of Ispaster (BEA 2020).

GOIENER's electricity prices are not the cheapest on the market. The cheapest electricity rate in Spain has been provided by the PVPC (Voluntary Price for Small Consumer) tariff since 2014 (REE 2014), and is totally regulated and linked to the spot electricity market price. According to the Royal Decree RD 216/2014 (BOE 2014) this tariff is only provided by the so-called reference retailers which are chosen based on certain parameters, such as holding a minimum number of contracts, above 100,000, and the ownership of distribution grids. GOIENER does not fit this profile.

As an agent of the social economy, GOIENER focuses on the alleviation of fuel poverty situations. The main tool to tackle fuel poverty in Spain is the Bono Social (Social Bonus), where vulnerable people can apply for a reduction of 25-40% in their electric and gas bill, but this tool is only provided by retailers offering PVPC, and hence is not an option for GOIENER. However, due to the social nature of the cooperative, it has instigated several measures to inform customers, such as providing electricity bill workshops. Furthermore, as relations with municipalities strengthen, there has been more cooperation between GOIENER and the social services of a municipality, giving rise to the Goiener Social project (Goiener Taldea 2016) in the municipalities of Zarautz and Usurbil. Moreover, in cases of non-payment of bills the policy in GOIENER is always to reach agreements for deferring payments and never to leave anyone without energy. These measures have been especially important since the onset of the COVID-19 pandemic as, in supporting its customers, GOIENER has gone beyond the mandatory protective measures (Goiener Taldea 2020b).

In the case of BARRIZAR, with the economic savings made by the municipalities through renewable projects, the town council is able to allocate more money in the budget for energy poverty or other social issues.

#### **4.3. Discussion: elements of social innovation in the organisations studied**

To sum up, the table below outlines the elements of social innovation contained in the experiences described above.

From the dual definition of 'social' as referring both to societal impact and to changes in existing social relations, these elements are broken down into the three dimensions proposed by the Crises Institute: governance, co-production/co-construction and a plural

economy. In each case, elements common to the experiences analysed are identified and features specific to each one are also highlighted (Table 4).

The two REScoop.eu initiatives originating in the Basque Country are analysed using the model proposed by the Crises Institute, which establishes three-dimensions in social innovation processes: governance, co-production and co-construction and a plural economy.

Extending the concepts outlined in the summary table above, it is clear that governance is shared between members, workers and associates. Over and above the formal participation arising from the legal form in which the initiatives are set up, i.e. the participation of the various types of members (worker members, user members and associate members) in general assemblies, volunteers also participate in the day-to-day affairs of organisations and in disseminating the initiatives themselves and the need to transition towards a different energy model. In the framework of collaborative governance, innovation that involves and integrates users represents a form of open innovation (Lévesque 2012).

Regarding co-production, these experiences stand out as a way of appropriation and governance that is conducive to the participation of trade users and sundry actors in the territory in the provision of the service. Within this co-production there are exemplary practices in regard to cooperation between cooperatives and the promotion of new cooperatives. This last point is very much in line with the pursuit of a more distributed, less centralised energy model that is closer to local citizens. Also noteworthy is the institutional framework, i.e. the co-construction of public policies. It is here that the experiences analysed are finding recognition for their specific features and their contributions to ensuring use of and access to the basic energy supplies needed to assure minimum levels of well-being. It therefore seems essential to develop cooperation between these experiences at different levels of the value chain. Signs of this can already be seen (REScoop.eu, UNIÓN RENOVABLES and PX1NME), and it may prove vital to set up networks to ensure across-the-board coordination and representation at different levels of public authority, with a view to fostering the establishment of commitments, the recognition of social actors and the co-construction and implementation of public policies. This cooperation is a fundamental requirement for social innovation and, in this vein, Cajaiba-Santana (2014) emphasises the importance of social engagement and cooperation among different social groups in order to clearly define what is meant by ‘socially desirable’.

Finally, a plural economy means not only plurality in forms of ownership but also in the resources and forms of action mobilised in these experiences. Various forms of ownership can be found in the field of energy, including a ‘subsidised’ private sector, the public sector and the SSE sector. This last sector is characterised by its collective ownership and its openness to the participation of members of different types (worker members, consumer members, associate members, users, etc.). This helps it to gain greater influence in a more general social transformation, mainly by supporting cooperation as opposed to competition, and encouraging responsible consumption (of energy in this case). In this regard, Coenen et al. (2017, 389) show that the ‘REScoops business and organisation model, the cooperative model, can place the REScoops in a good position to take certain measures and succeed in persuading their customer members to lower their energy consumption’.

The open nature of these organisations enables them to hybridise different resources, as set out above. This includes both monetary (public and private) and non-monetary

Table 4. Scale of social innovation at the organisations analysed.

SCALE OF SOCIAL INNOVATION	SOCIAL & SOLIDARITY-BASED ORGANISATIONS STUDIED	
	BARRIZAR	GOIENER
A) GOAL WITH SOCIAL IMPACT	<ul style="list-style-type: none"> <li>• Distributed energy model</li> <li>• Generation of photovoltaic &amp; biomass energy</li> <li>• Heightening of awareness of responsible consumption</li> </ul>	<ul style="list-style-type: none"> <li>• Distributed energy model</li> <li>• Energy monitoring by the public</li> <li>• Generation &amp; sale of energy from renewable sources</li> <li>• Heightening of awareness of responsible consumption</li> </ul>
B) NEW WAYS OF COOPERATION		
b.1. Model of governance	<p>Worker members</p> <p>Associate members</p> <p>‘Friend’ status (volunteering)</p>	<p>a) Retailer (Goiener S. Coop.)</p> <p>Worker members</p> <p>Associate members</p> <p>Consumer members</p> <p>Collaborating members</p> <p>b) Generation (Nafarkoop S. Coop.)</p> <p>Worker members</p> <p>Associate members</p> <p>c) Empowerment</p> <p>Elkartea (volunteering)</p>
b.2. Co-production & co-construction	<p>a) Cooperation between cooperatives:</p> <p>Support of Som Energía &amp; Goiener</p> <p>b) Territory</p> <p>Dissemination of model</p> <p>Working committees</p> <p>c) Sectoral networks</p> <p>REScoop.eu, PX1NME</p>	<p>a) Cooperation between cooperatives:</p> <p>Promotion of new cooperatives</p> <p>Open access management system</p> <p>b) Territory</p> <p>Thematic working groups</p> <p>Local groups</p> <p>c) Sectoral networks</p> <p>REScoop.eu, REAS, PX1NME, UNIÓN RENOVABLES</p>
b.3. Plural economy	<p>a) Forms of ownership</p> <p>Collective</p> <p>b) Mobilisation of resources</p> <p>Monetary (public &amp; private)</p> <p>Non monetary (volunteering)</p>	<p>a) Forms of ownership</p> <p>Collective</p> <p>b) Mobilisation of resources</p> <p>Monetary (public &amp; private)</p> <p>Non monetary (volunteering)</p>

Source: Own work.

(volunteers and donations) resources. In this sense, it confirms what Willis and Willis (2012, 32) pointed out, that ‘the co-operatives faced similar difficulties: a regulatory environment that changes constantly; access to finance; planning and legislative hurdles; and, the stresses of maintaining motivation and finding the time, particularly as all rely heavily on volunteer input’.

It therefore seems reasonable to assert that in the Basque Country the social and solidarity-based economy is becoming a socially innovative actor, which incorporates all the dimensions that define processes of social innovation.

Once the nature of the experiences described above has been determined, we can answer the question posed in the approach to the work: what are the benefits that these experiences, within the framework of the SSE and applying elements of SI, bring to the energy transition?

In this case, we can observe how these experiences achieve progress in the different strategic areas raised by TSI theory (Haxeltine et al. 2016): enact an (existing) institution in a different way; make (novel) choices about which (intersecting) institutions to enact; use resources differently or use different resources or create new resources; and take advantage of contingency and context dependence (in resource accumulation).

The two experiences described above seek to question the mechanisms of operation of the electricity sector. The energy model based on fossil energy and centralised production is questioned. It advocates organisational models based on participation and involvement, from an approach related to energy democracy and to enact this institution in a different way, through a model based on renewable and decentralised energy. It is also about making new choices, in this case, trying to design and promote installations or solutions for clean energy generation through renewable energy, such as biomass, solar energy, etc., by trying to generate new resources in line with the proposed transformation or to use the resources in a different way. In the case of energy transition, this involves promoting energy savings through actions and protocols aimed at improving efficiency (insulation, LEDs, energy management, certified green energy, home automation). Finally, advantages are also obtained by taking advantage of contingency and context dependence, for example, through the acquisition of disused power generation plants, or by entering recently liberalised activities (Table 5).

All information collected shows that the organisations analysed fulfil the characteristics presented by Soeiro and Ferreira (2019) in their systematic review of the literature about such organisations that promote community-based renewable energy initiatives (see 2.2 section). The development of these dimensions is to some extent a precursor of the key elements identified in the desired energy transition which, it is hoped, will lead ultimately to a different, more sovereign, more distributed, more democratic, self-managed energy model.

In summary, in response to the research question raised, local small-scale experiences, such as those described in this paper, based on SSE and using TSI elements, bring concrete outcomes (reduction of consumption through energy efficiency and greater awareness reinforced by involvement; changes in power relations; creation of a transformative discourse reinforced by a network etc.). Moreover, they do so by employing and reinforcing values that challenge the dominant model (democracy, justice, cooperation, decentralisation).

Table 5. Summary of the transformative strategies applied by Barrizar and Goiener.

Type of generic strategy according to TSI model (Haxeltine et al. 2016)	Type of outcome achieved
Enact an (existing) institution in a different way	<p>Questioning the centralised and fossil energy model</p> <ul style="list-style-type: none"> <li>• Democratic and participatory structures</li> <li>• Networking between different organisations</li> <li>• Involvement, reinforces attitudinal change</li> </ul>
Make (novel) choices about which (intersecting) institutions to enact	<p>New commitments in the energy sector</p> <ul style="list-style-type: none"> <li>• Clean generation facilities</li> <li>• Commitment to efficiency and reduction of consumption</li> </ul>
Use resources differently or use different resources or create new resources	<p>Different approach to available resources</p> <ul style="list-style-type: none"> <li>• Start-up of small generation plants (new or recovered from abandonment)</li> <li>• Insulation, LEDs, home automation</li> <li>• Marketing of certified green energy</li> </ul>
Take advantage of contingency and context dependence (in resource accumulation)	<p>Renewed commitment to disused resources or new opportunities</p> <ul style="list-style-type: none"> <li>• Recovery of disused generation plants</li> <li>• Entry into liberalised activities</li> </ul>

Source: Compiled by the authors based on Haxeltine et al. 2016

## 5. Final considerations and conclusions

The work presented above aims to give continuity to the previous studies dealing with the analysis of community energy experiences from the perspective of social innovation. These experiences base their socially innovative character on the fact that they try to contribute to low carbon energy transition through experiences based on civil empowerment and with a direct impact on the well-being of communities.

The analysis of these two REScoop.eu's initiatives in the Basque Country illustrates the practical application of social innovation experiences in the context of energy transition. It also aims to highlight the convergences between the organisational logics of the SSE entities and the social innovation factors analysed in this article. Based on the theoretical proposal made by the Crises Institute, the main contribution of this study is to show that social innovation occurs through these experiences of SSE in the Basque Country by its clear social vocation, and by its ability to have a positive impact on economic plurality through models of governance and co-construction that involve various socio-economic agents in the processes of energy creation, distribution and consumption. All this has a positive impact on civil empowerment and community welfare, which are fundamental objectives in terms of social innovation.

Therefore, it is clear that these SSE experiences with SI dimensions contribute to a more just and democratic energy transition. Firstly, these experiences contribute to



energy democracy as they are more inclusive and equitable organisational structures in which different stakeholders at a local level take part and make decisions in the organisation (worker members, user members, associate members and volunteers), making closer links between consumption and production. Secondly, considering that democracy is primarily viewed as playing an instrumental role in discovering and implementing demands for energy justice, these experiences also address both the benefits and burdens of energy services, and contribute to more representative and inclusive energy decision-making. As such, they are organisations that are moving towards a human-centred approach.

Finally, we would like to point out some of the limitations of our analysis and the future research lines that could be opened. Firstly, this analysis focuses on co-operative entities that are members of the REScoop.eu network. We note the existence of other organisational logics within the SSE, beyond those based on collective ownership, which incorporate some other socially innovative elements. We have also observed some public experiences involving cooperative companies, such as the case of Oñatiko Ur Jauziak, which opens up an interesting line of study on innovative public-community practices, also known as Public-Social and Solidarity Partnerships (Bance et al. 2018).

The case studies presented in this paper, therefore, are not representative of all the experiences of social innovation existing in the Basque Country in the energy field, but they can shed some light on the more precise definition of the elements of social innovation that they incorporate.

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## Notes

1. The Centre de recherche sur les innovations sociales (Centre for research on social innovations – CRISES) is an interuniversity and multidisciplinary research centre. They study and analyse innovation and social change in four complementary areas: social innovations and transformations in 1) social policies and practices, 2) territories and living environments, 3) social and collective organisations, 4) work and employment. Webpage: <https://crises.uqam.ca/anglais/>

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