



# D3.4

## Case study 4 report: UR BEROA – Energy efficiency-driven cooperative, Spain

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## Disclaimer and acknowledgement

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## Executive summary

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This deliverable presents the findings of the UR BEROA case study. It is one of the six case studies carried-out in the GRETA project. The case studies of the GRETA project are targeted to provide enhanced understanding of the different conditions that affect the emergence of, and engagement to energy citizenship at local level, with the final aim to provide policy relevant recommendations. The energy citizenship can take different forms and involve citizens at different levels varying from citizens being unaware of energy transition to citizens being active advocates of energy transition. The GRETA case studies look at the energy citizenship emergence in different European local communities (Italy, the Netherlands, Portugal, Spain, and Germany) and have different goals (e.g., increasing the renewable energy use, energy efficiency or mobility concerns).

The UR BEROA case study is focused on an energy cooperative located in Spain, and analysis of different factors affecting individual citizens' preferences, and type and level of citizens' engagement to joining an energy cooperative. Particularly, the case study aims to analyse:

- How different factors, including *outcomes* arising from the engagement, the dominant *social norm* to engage, and level of *agency* employed, affect the emergence of energy citizenship and level of engagement to energy citizenship?
- How the *relational model* presenting the interactions among the actors, and *asymmetries across the behaviour* of the actors mediate the emergence of energy citizenship, and level of engagement to energy citizenship?

To answer these questions, the case study used secondary data consisting of the background study looking at existing information of the UR BEROA energy cooperative, its actors, and policy framework. The background study has been complemented by primary data collection through interviews to UR BEROA members, policymakers at different governance levels (local, regional, and national) and workshop organised in the context of Community Transition Pathway (WP5) and definition of Community level Indicators (WP2).

The analysis of the results of the case study highlights that individuals can play a proactive role in engaging with the energy transition when certain context conditions are met. The case shows how individuals can be drivers of the energy transition when they take collective action and join with peers to set up their own energy cooperative and it shows that this initiative, although somehow supported by different policies, can arise and be driven by citizens. However, for this initiative to happen, some baseline conditions are needed: a set of values that motivates individuals to take collective action towards more sustainable behaviours, a certain level of education and knowledge regarding the energy system and the role of citizens in it, and the financial

and other type of resources that allow citizens to invest and set up collective energy initiatives. In addition, it emphasises on the relevance of the different actors and the relationships among them to facilitate energy citizenship. In this regard, more collaborative relations seem to enhance a more active participation of the actors in the green transition. Finally, an adequate policy framework and instruments are essential to support different actors, especially citizens, on their path towards a more active energy citizenship.

The report is organised as follows:

- Chapter 1 introduces the reader the case study by presenting an overview of the UR BEROA energy cooperative, as well as the research approach applied for the case study.
- Chapter 2 summarises the findings of the background study by describing the UR BEROA energy cooperative, relevant actors, and the policy landscape.
- Chapter 3 provides an analysis of the interviews carried out. It first presents the defined behaviour and goals for each actor, and secondly, it shows the key results looking at the outcomes, norms, and agency, as well as the relational model and asymmetries analysis across the actors.
- Chapter 4 discusses and reflects the findings in the light of policy recommendations.
- Chapter 5 presents the conclusions of the UR BEROA case study.

## Project information

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## Table of contents

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<b>Disclaimer and acknowledgement</b> .....	<b>2</b>
<b>Executive summary</b> .....	<b>3</b>
<b>Project information</b> .....	<b>5</b>
<b>Document information</b> .....	<b>6</b>
<b>Table of contents</b> .....	<b>7</b>
<b>List of figures</b> .....	<b>8</b>
<b>List of tables</b> .....	<b>8</b>
<b>Abbreviations and acronyms</b> .....	<b>9</b>
<b>1 Introduction</b> .....	<b>10</b>
1.1 Brief description of the case study.....	10
1.2 Objectives of the case study .....	10
1.3 Case study research design.....	11
<b>2 Background study findings</b> .....	<b>14</b>
2.1 Description of the case study .....	14
2.2 Relevant actor and policy landscape.....	16
<b>3 Analysis of the interviews</b> .....	<b>23</b>
3.1 Behaviour and goals per actor .....	23
3.2 Positive and negative outcomes associated with engaging in GRETA .....	25
3.3 Norms associated with engaging in GRETA.....	28
3.4 Agency associated with engaging in GRETA.....	29
3.5 Relational model associated with engaging in GRETA.....	32
3.6 Asymmetries analysis across actors .....	35
<b>4 Discussion and reflection</b> .....	<b>41</b>
4.1 Drivers and barriers and the role of agency and relations among actors in energy citizenship .....	41
4.2 The role of policy in energy citizenship .....	43
<b>5 Conclusion</b> .....	<b>46</b>
<b>References</b> .....	<b>48</b>
<b>Annex 1: Anonymised list of interviewees</b> .....	<b>49</b>
<b>Annex 2: Guide for interviews</b> .....	<b>50</b>

## List of figures

---

Figure 1: Energy citizenship emergence, and levels of engagement (Source: GRETA project proposal)..... 17

## List of tables

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Table 1: Key actors of the UR BEROA case study ..... 19

Table 2: Most relevant policy documents related to UR BEROA case study ..... 22

Table 3: Actors, and their associated behaviours and goals ..... 24

Table 4: Matrix of behavioral patterns and asymmetries- UR BEROA case study ..... 36



## Abbreviations and acronyms

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AR:	Authority Ranking
CEC:	Citizens Energy Community
CLI:	Community Level Indicators
CNMC:	The Spanish National Markets and Competition Commission
CS:	Community Sharing
CTP:	Community Transition Pathway
EM:	Equality Matching
ESCO:	Energy Services Company
EVE:	Basque Country Regional Energy Agency
IDAE:	The Spanish Government's Institute for the Diversification and Saving of Energy
kWp:	kilowatt-peak
kWh:	kilowatt-hour
MP:	Market Pricing
PV:	Photovoltaic
REE:	Red Eléctrica de España
REC:	Renewable Energy Community
RES:	Renewable Energy Sources
WP:	Work Package

# 1 Introduction

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## 1.1 Brief description of the case study

The case study analyses UR BEROA, which is an energy cooperative providing energy to its 550 members living at Bera Bera neighbourhood in Donostia-San Sebastian, Spain. The cooperative was established in 1985 for the purpose of providing district heating and hot water for the residents of the neighbourhood. Over the years, UR BEROA has successfully implemented solutions to produce cleaner energy and currently, the facilities consist of three natural gas boilers, a cogeneration engine, a biomass boiler, and solar panels. UR BEROA is currently taking another step towards decarbonisation with the installation of photovoltaic (PV) system providing electricity to around 100 households. Overall, the goal of the cooperative is to drive a shift towards higher level of decarbonisation and energy efficiency. The cooperative aims to significantly grow its member base, increase the energy services it provides, and implement collective renewable energy-based self-consumption. The first steps towards the desired future are targeted to be finalised over the next five-year period by 2027. The first phase consists of communication and commercial activities targeted to current and potential members of the cooperative, further viability studies to examine the economic and environmental feasibility of PV, electric vehicle and hydrogen projects, and measures to improve the household energy-efficiency of the UR BEROA members by leveraging collective actions by the cooperative.

Currently, UR BEROA is not label as an energy community, but an energy cooperative, for two main reasons<sup>1</sup>. On the one hand, because it was created before the EU's regulation on energy communities. On the other hand, it does not yet fulfil the requirements for being labelled as an energy community according to the current regulations. The cooperative does not meet the conditions for been a renewable energy community (REC) since it has not developed renewable energy projects until very recently. Now, it is in the process of implementing an installation of photovoltaic panels to provide electricity to some of its members and will create a REC to manage this new project.

## 1.2 Objectives of the case study

The overall aim of the GRETA case studies is to explore and analyse the factors that are affecting the emergence of energy citizenship. The case studies are carried out at local

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<sup>1</sup> Most energy communities created in Spain use the legal form of a cooperative, since an energy community is not a legal form under Spanish legislation.

level, with the final aim to provide policy relevant recommendations. The energy citizenship can take different forms and involve citizens at different levels varying from citizens being unaware of energy transition to citizens being active advocates of energy transition. The GRETA case studies look at the energy citizenship emergence in different European local communities (Italy, the Netherlands, Portugal, Spain, and Germany) and having different goals (e.g., increasing the renewable energy use, energy efficiency or mobility concerns).

The UR BEROA case study analyses different factors affecting individual citizens' preferences, and type and level of citizens' engagement to an energy cooperative. Particularly, the case study aims to analyse:

- How different factors, including outcomes arising from the engagement, the dominant social norm to engage, and level of agency employed, affect the emergence of energy citizenship, or level of engagement to energy citizenship?
- How the relational model presenting the interactions among the actors, and the asymmetries across the behaviour of the actors mediate the emergence of energy citizenship, or level of engagement to energy citizenship?

By answering these two questions, the case study aims to provide policy relevant recommendations, supporting the future policymaking by enhancing the understanding of emergence of energy citizenships and different factors affecting it.

### 1.3 Case study research design

This section describes the different data collection methods used for the case study analysis, including a literature review carried-out for the background study, (2) stakeholder interviews, and (3) a stakeholder workshop with the members of UR BEROA energy cooperative.

#### (1) Background study

The background study was carried-out as a first step of the case study data collection. The purpose was to gather relevant information and define the scope and relevant actors of the case study. This background research and outline has several aims:

- To scope cases and identify in more detail the stakeholders involved
- To understand the background of the case and preliminary insights concerning the drivers and barriers, further analysed with the empirical results of WP3.
- To define the policy landscape of the case study to frame a context for the policy relevant insights resulting from the case study.

For the UR BEROA case study, a literature review of the existing information including online material (e.g., UR BEROA website, newspaper, and magazine articles), as well as relevant policy documents, and previous studies was carried out. The literature

review was complemented by two scoping interviews with the UR BEROA management office. The background study report utilised a predefined structure for all the case studies to ensure a harmonised collection of background information across case studies. The report was delivered in December 2021.

## **(2) Stakeholder interviews**

Interviews of key stakeholders were used to explore the drivers, barriers, and policy context for energy citizen emergence. The aim was to carry out 10-15 interviews per case study with individuals with experience in the case study, including current users or potential adopters of the product or service subject to the case study; current suppliers or potential developers of the product or service that is related to the case study; and EU, national policymakers, or regulators relevant to the case study. For the UR BEROA case study, the targeted stakeholder groups for the interviews were members of UR BEROA energy cooperative, policymakers in national, regional, and local levels, and UR BEROA suppliers consisting of UR BEROA management office and key technology supplier.

The interview invitations were sent in May 2022, and as a result altogether 14 interviews were conducted in the period of June-July 2022 (further details in Annex 1), including:

- 9 interviews with members of UR BEROA cooperative, many of them with a long history as a member of the cooperative, several being among the founding members, including persons with current and previous positions in the management board of the cooperative.
- 3 interviews to policymakers, including 1 national policymaker (ministry responsible of energy), 1 regional policymaker (regional energy agency) and 1 local policymaker (city council), and
- 2 interviews to suppliers, including 1 personnel of UR BEROA's management office and 1 key technology supplier.

The interviews followed a predefined structure and questionnaire (see the interview questionnaires in Annex 2). The questionnaire was translated to local language (Spanish) and adapted according to the predefined behaviours of each actor type. The interviews were recorded after requesting a written consent form. The interview results were gathered for each type of actors in a common table that facilitated a comparative analysis of the benefits, norms, agency and relational model, and a summary of the interview results was delivered in July 2022.

## **(3) Stakeholder workshop**

The UR BEROA case study also utilised the results of a stakeholder workshop organised by TECNALIA for the UR BEROA energy cooperative members. The workshop had a double objective: to jointly define future goals and actions of the cooperative in the context of the Community Transition Pathway (CTP) (WP5) and to

outline the Community Level Indicators (CLIs) (WP2) to monitor the progress towards the established goals. The workshop was organised in Donostia-San Sebastian, Spain, on June 13, 2022. The workshop brought together 16 participants including members of UR BEROA cooperative and administrative staff from the UR BEROA office. The workshop had an introductory session, in which the TECNALIA team explained the objective and working methods; group work sessions, in which the participants worked together in three groups, each made up of 5-6 people; and plenary sessions, in which the results of the group work were presented.

The workshop results have been reported following the instructions given by WP2, and they have been used for drafting the Community Transition Pathway for UR BEROA in WP5. In the context of the case study, the results have been used for clarifying some aspects of the background study e.g., more updated information of the current objectives and ambitions for future development of the cooperative, and as contextual information for the interviews.

## 2 Background study findings

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This section summarises the findings of the background study, describing the UR BEROA energy cooperative, looking first briefly at its history and most important developments over the years, and then describing the most relevant actors involved as well as the policy framework supporting these developments.

### 2.1 Description of the case study

The case study examines UR BEROA, an energy cooperative formed by the residents of the Bera Bera neighbourhood in Donostia-San Sebastian, Spain. It supplies domestic hot water (DHW) and community heating to its members and has improved the energy efficiency of the neighbourhood since its establishment in 1985.

The neighbourhood is part of the bigger Aiete district, located in one of the upper parts of the city. Most of the neighbourhood was built in the 1970s. It was a very advanced project for the time, with an architecture that aimed to respect the environment. It is a residential area where the houses of the neighbourhood are adjusted to the existing landscape and are arranged in a staggered way, taking advantage of the slope of the trough, which allowed the houses to have large terraces. The neighbourhood is very well connected to the city centre by public transport (bus and train), and it has several sports facilities and a shopping area that serves the neighbourhood. Other social and health facilities, such as schools and health centres, are available in the Aiete district close by, but are not located in the neighbourhood.

The cooperative was founded in 1985, when the neighbours acquired the bankrupt private company that had been providing them with domestic hot water and community heating until that moment. The neighbours decided to create a cooperative in order to have their supply and their prices controlled by the local community instead of a distant energy company. Their supply is carried out under the best feasible economic conditions, so that the partners' compensation is proportionate to the cost of such services and supplies, including the cooperative's general costs.

The cooperative has evolved toward more efficient and clean energy sources, but its composition and structure have not suffered significant changes, and the membership is usually transferred along with the house when it is sold.

Among the principles that inspire the cooperative, the most significant is its democratic nature, which guarantees each member the same obligations and rights regardless of their capital stock involvement. The social capital of the cooperative is made up of the partners' mandatory or voluntary patrimonial contributions.

The cooperative is set up in line with its Bylaws, which are registered at the Cooperative Registry in accordance with the Basque Country Cooperatives Law (Law 4/1993).

The Internal Rules of Procedure contain the operational rules and guidelines that govern the cooperative's day-to-day operations, as well as the cooperative members' and users' duties and rights. Both papers are presented to the Assembly for approval.

Since its establishment, the cooperative has successfully introduced more efficient and cleaner energy sources and ways to measure the energy consumption of each household. Now, the cooperative is slowly making its way toward decarbonisation, as its goal is to drive a shift toward a higher level of decarbonisation.

UR BEROA is currently made up of 550 members, and it supplies services through district heating based on a cogeneration system. To provide these services, the cooperative has committed to have the necessary facilities that operate with the highest respect for the environment and energy savings, being able to produce electricity in a cogeneration regime.

The facilities consist of three natural gas boilers, a cogeneration engine, a biomass boiler, and solar panels that generate hot water, which is distributed to seven substations. The entire system is remotely managed so that each zone has its temperature settings regulated to its needs.

In November 2017, UR BEROA approved the alliance for the next 15 years between Giroa Veolia (the company in charge of the proper functioning of the facilities) and the cooperative, which became partners in 49% and 51% of URGI, the new Energy Services Company (ESCO) created. It is a technological alliance aimed at better managing the energy services and sharing the investment to renew the infrastructure and network, relieving members of any cost. As a result of this deal, residents were expected to see their hot water and heating bill reduced by 10-15% compared to the price of other companies on the market.

UR BEROA is currently taking another step towards decarbonisation with the installation of 222 PV panels that will produce 99.90 kWp and will provide electricity to around 100 households (103,200 kWh/year).

## 2.2 Relevant actor and policy landscape

This chapter describes and analyses the relevant actors and policy landscape for the UR BEROA case study<sup>2</sup>. The cooperative aims to significantly grow its member base, increase the energy services it provides, and implement collective renewable energy-based self-consumption. These operations will require introducing strong collaborations between several actors, such as citizens, policymakers, and suppliers, and support from relevant policy framework.

### Relevant actors

For this case study, the most important actors are the **members of the UR BEROA energy cooperative**. A cooperative, by definition, is a “company owned, controlled and run by and for their members to realise their common economic, social, and cultural needs and aspirations<sup>3</sup>”. In the case of UR BEROA, the cooperative was established and is run by 550 residents living in the Bera Bera neighbourhood in Donostia-San Sebastian. In total, there are approximately 1,500 inhabitants in the neighbourhood, and it gathers the inhabitants with the highest income of the city, with an average per capita income of EUR 33.216. Around 33% of the neighbours have university-level degrees, and the level of diversity is rather low, with around 5% of foreign population. The average age of the neighbours is 41 years.

The UR BEROA members can be characterised as energy aware citizens, as they jointly own the district heating system producing heat and hot water for the neighbourhood. The engagement of energy citizenship, defined as “awareness of responsibility for climate change, equity and justice in relation to siting controversies as well as fuel poverty and [...] the potential for (collective) energy actions, including acts of consumption and the setting up of community renewable energy projects<sup>4</sup>” can take different forms and levels as shown in the Figure 1 below. The engagement can vary from being unaware of the need to transit to a sustainable energy society, to a being fully active and advocating for a change.

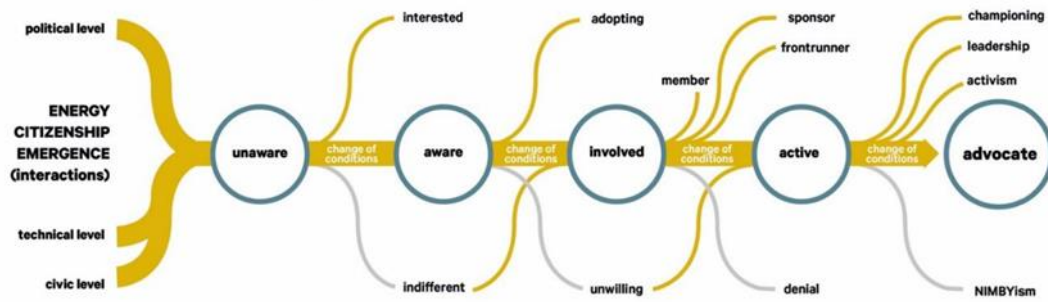
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<sup>2</sup> More details can be found in Montalvo, C., Schlindwein, L., Kantel, A., Preuss, S. (2022). Impact analysis of policy context for each case study. D6.1 of the Horizon 2020 project GRETA, EC grant agreement no 101022317, The Hague, The Netherlands.

<sup>3</sup> International Cooperative Alliance (2022) But what does it mean? Explaining what a cooperative is. Online article available: <https://www.ica.coop/en/cooperatives/what-is-a-cooperative>. Accessed 15/12/2022.

<sup>4</sup> Montalvo, C., Schlindwein, L., Ruggieri, B., Kantel, A. (2021). Framework for research on energy citizenship emergence structure and dynamics. D1.1 of the Horizon 2020 project GRETA, EC grant agreement no 101022317, The Hague, The Netherlands.





**Figure 1: Energy citizenship emergence, and levels of engagement (Source: GRETA project proposal).**

In terms of level of engagement to energy citizenship, overall, the members of UR BEROA can be considered to be at least aware or involved, as they form part of an energy cooperative that is devoted to make the jointly owned energy infrastructure more efficient, and greener by gradually introducing more renewable energy sources. The UR BEROA members more intensively involved in the cooperative, especially those taking part of the manage board, can be considered to have reached already an active level of engagement. In future, the UR BEROA energy cooperative as a community can be expected to reach an advocate level, whereas all the members can reach at least an active level of engagement.

For the UR BEROA energy cooperative, a key **supplier** is the UR BEROA’s management office. The management office is responsible of the day-to-day operations of the cooperative as well communication activities towards its members. The management office currently employs two persons, including a managing director. UR BEROA’s energy infrastructure consists of a cogeneration system producing heat and domestic hot water, and over the years, many different types of suppliers have been contracted for its installation, operation, maintenance, renewal, and enlargement etc. One of the key technology suppliers of UR BEROA is Giroa Veolia<sup>5</sup>. Giroa Veolia is an energy and environmental management services company, dedicated to heating and cooling system installations and maintenance. It is responsible of the technical functioning of the energy facilities of UR BEROA.

In terms of **policymakers at national level**, the General State Administration, through the Ministry for Ecological Transition and Demographic Challenge, has the main energy regulatory responsibilities. It oversees the establishment of basic regulations of electrical energy generation, transit, and sale in Spain. It is also in charge of regulating the structure of prices, the rate, and the amount corresponding to the use of transport

<sup>5</sup> Giroa-Veolia is part of Veolia Group ([www.veolia.com](http://www.veolia.com)), a France-based multinational company focused on water, waste and energy management.

networks and distribution (network access tolls), as well as setting the minimum requirements for quality and safety that must govern the supply of electrical energy. This serves both small and large customers.

The Spanish government established the National Energy Commission in 1998 to ensure effective competition in the energy systems. This Commission was integrated into the Spanish National Markets and Competition Commission (CNMC), now belonging to the Ministry of Economic Affairs and Digital Transformation, which is in charge of the establishment of the basic regulation of the generation, transportation, and marketing of electrical energy in Spain. The nominated electricity market operator, OMIE, manages the wholesale electricity market, while the system operator Red Eléctrica de España (REE) oversees technical and safety issues. The latter is in charge of guaranteeing the proper operation of the power supply system as well as ensuring the continuity and security of the electricity supply. REE handles the complete electrical energy transmission network (high voltage) but does not distribute electricity (low voltage), while OMIE oversees the daily and intraday wholesale power markets in Spain and Portugal.

The Spanish Government's Institute for the Diversification and Saving of Energy (IDAE) is a public entity working in support of the conservation, saving and diversification of energy sources. It is assigned to the Ministry for the Ecological Transition through the Secretary of State for Energy, to which it reports. It contributes, among other responsibilities, to fulfil the country's objectives and commitments regarding the improvements in energy efficiency, renewable energy, and other low carbon cost technologies. To that purpose, the IDAE conducts promotional and training activities, technical consultation, the development of particular programmes, and the financing of innovative and repeatable technical initiatives. Likewise, the Institute leads active international engagement within the framework of various European Programmes.

At the **regional level**, the Autonomous Communities of Spain are not a body or an energy institution, but they do have significant competences in energy and environmental issues. They have a limited regulatory and normative margin of action, and they are unable to go beyond exercising a certain capacity for influence, pushing recommendations for review and adaptation of the regulatory framework specified by the General State Administration. Furthermore, the autonomous communities can hold renewable energy tenders that are not linked to standardised remuneration or state objectives; or design environmental taxes that are distinct from one another, among other things. Subsidies and incentives can also be used to promote renewable energy and energy efficiency initiatives.

The Energy Agency of the Basque Government (EVE) is the regional agency responsible for the energy policy regarding energy efficiency, diversification of energy sources and promotion of renewables. It is in charge of the energy strategies for the Basque Country region and participate in the developing of these strategies as well as contribute to meeting the targets established.

**Provinces and municipalities**, and their organisms and agencies, might establish requirements for the development of facilities and infrastructures regarding licences, passageways, permissions, and so on. They can also create strategies for energy efficiency and mobility.

The following table summarises the relevant actors for the UR BEROA case study.

**Table 1: Key actors of the UR BEROA case study**

Actor type	Description
<b>Citizens</b>	<ul style="list-style-type: none"> <li>• Current members of the UR BEROA cooperative</li> <li>• Homeowners of Bera Bera neighbourhood and surrounding neighbourhood that are potential future members of the UR BEROA cooperative.</li> </ul>
<b>Policymakers</b>	<p><i>At local level:</i></p> <ul style="list-style-type: none"> <li>• City Council of Donostia-San Sebastián</li> <li>• Fomento San Sebastián (municipal company responsible for the socioeconomic development strategy of Donostia-San Sebastian)</li> </ul> <p><i>At provincial level:</i></p> <ul style="list-style-type: none"> <li>• Gipuzkoa Provincial Council</li> </ul> <p><i>At regional level:</i></p> <ul style="list-style-type: none"> <li>• Basque Government - Department of Economic Development, Sustainability and Environment</li> <li>• Basque Country Regional Energy Agency (EVE)</li> </ul> <p><i>At national level:</i></p> <ul style="list-style-type: none"> <li>• The Ministry for Ecological Transition and Demographic Challenge</li> <li>• The Spanish Government's Institute for the Diversification and Saving of Energy (IDAE)</li> </ul>
<b>Suppliers</b>	<ul style="list-style-type: none"> <li>• UR BEROA cooperative management office</li> <li>• Current and future technology and technical suppliers of UR BEROA, such as GIROA Veolia.</li> </ul>

### Policy landscape

The policymakers presented above establishes a complex policy landscape. There are several policies and regulations at the national, regional, provincial, and local levels that are influencing the case study.

UR BEROA is a consolidated energy cooperative with a long trajectory. Without the “label” of energy community, UR BEROA has been functioning as an energy community for many years. The Spanish policy context nowadays promotes energy communities and the active participation of citizens in the energy system, with different mechanisms and instruments. In its evolution towards a greener energy cooperative, UR BEROA will potentially benefit from the current policy context.

At **national level**, although the EU Directives 2018/2001 (RED II) and 2019/944 (IEM) have not been completely transposed to Spanish legislation, Spain introduced the definition of renewable energy communities (REC) in Royal Decree-Law 23/2020. There is no transposition of the citizens energy communities (CEC) definition yet.

In the Long-Term Strategy for a Modern, Competitive and Climate-Neutral Spanish Economy in 2050 (ELP 2050) self-consumption, as well as local energy communities are discussed briefly in the context of promoting social participation of achieving renewable energy targets and setting citizens in the centre of the transition.

The Integrated National Energy and Climate Plan 2021–2030 Plan outlines policy initiatives related to renewable energy communities and citizen energy communities. The measures include the assessment of the existing barriers for the development of energy communities to ensure that they can produce, consume, store, and sell renewable energy, in particular through renewable electricity purchase contracts. Furthermore, it ensures that energy communities have access to all appropriate energy markets, both directly and through aggregation. The citizen energy communities should be allowed to own, establish, acquire, or lease distribution networks and manage them autonomously, as well as to access all organised markets.

The Royal Decree 244/2019, of April 5, which regulates the administrative, technical, and economic conditions of the self-consumption of electrical energy is the first definition or framework for energy self-consumption and energy community in Spain. Until this Decree, the legal framework was hampering the uptake of renewable energy communities' due to instability and unexpected changes of the regulatory framework and support schemes. Since 2011, the renewable energy self-consumption was subject to taxing which basically imposed that the energy self-consumers had to pay on the energy that they produced themselves on their own roofs with their own solar panels. From the perspective of energy communities, this degree established a new era, and the energy communities are again gaining popularity in Spain.

In the Recovery, Transformation and Resilience Plan, energy communities are mentioned as an activity line of the renewable energy objectives. The action line aims to promote citizen participation in the energy transition and, specifically, of renewable energy communities and citizen energy communities. To achieve the objective set, participatory training and community constitution processes are financially supported, as well as the promotion of specific projects.

Different lines of funding lines have been established at national level for energy communities: CE-Aprende, CE-Planifica, and CE-Implementa, endowed with a total of 100 million euros. These three lines of subsidies will be complemented by a network of Community Transformation Offices coordinated by the IDAE and distributed throughout Spain.

At **regional level**, there is also an active support of energy communities, with an initiative called EKIOLA as the main support mechanism to achieve the policy objectives set in the Basque Country. This initiative, promoted by the Basque Government and private investors, focuses on the creation of energy communities at the local level, with the support of local administrations. The Donostia-San Sebastian City Council has been one of those local administrations that have triggered the creation of an energy community at municipal level. Although UR BEROA was established years before this initiative, it shows, along with other abovementioned policy frameworks, the political will of fostering citizen engagement in the energy transition in the region and the city of Donostia-San Sebastian. Since the regional government is committed to supporting energy communities, this means that UR BEROA will remain stable and will have access, if not entirely, to new funding programmes and support from the administration.

Furthermore, the Climate Change Strategy 2050 of the Basque Country - Klima 2050 was launched. It foresees promoting the take-up of low-power renewable facilities (photovoltaic, mini-hydro, mini-wind) and the use of biomass and support towards energy self-sufficiency of buildings.

The Energy Strategy of the Basque Country 2030 sets the regional vision and objectives relying on the European and national energy policy frameworks. The strategy presents a long-term vision (2050) and shorter-term scenarios (2030) of the regional energy system, and objectives for achieving the vision for the period 2016-2030.

In the Law 4/2019, of February 21, on Energy Sustainability of the Basque Autonomous Community, the energy communities are mentioned through the promotion of more local and community energy management and the law mentions energy self-consumption systems as a subject for regulation.

The Basque Strategy for Hydrogen can also be of high relevance for UR BEROA in the future, since the community is to substitute gas by green hydrogen in the next years.

At the **provincial level**, the favourable policy framework —mainly the Energy sustainability strategy of Gipuzkoa 2050— is underpinned by several financial support mechanisms, such as subsidies for the creation of new energy communities, as well as investment by energy communities in photovoltaic installations. UR BEROA is currently setting up its first photovoltaic project, which will generate 100 kW and will provide service to 100 families. UR BEROA is expecting to leverage from the provincial financial aids.

The Table 2 below summarises the most relevant policy documents forming a policy landscape for the UR BEROA case study.

**Table 2: Most relevant policy documents related to UR BEROA case study**

Policy level	Name of the policy document
<b>National</b>	<ul style="list-style-type: none"> <li>• Long-Term Strategy for a Modern, Competitive and Climate-Neutral Spanish Economy in 2050 (ELP 2050)</li> <li>• Integrated National Energy and Climate Plan (NECP) 2021–2030 Plan</li> <li>• Royal Decree 244/2019, of April 5, which regulates the administrative, technical and economic conditions of the self-consumption of electrical energy</li> <li>• Royal Decree-Law 23/2020, of June 23, which approves measures in the field of energy and in other areas for economic reactivation</li> <li>• Recovery, Transformation and Resilience Plan</li> </ul>
<b>Regional</b>	<ul style="list-style-type: none"> <li>• Climate Change Strategy 2050 of the Basque Country - Klima 2050</li> <li>• Energy Strategy of Basque Country 2030</li> <li>• Law 4/2019, of February 21, on Energy Sustainability of the Basque Autonomous Community</li> <li>• Basque Strategy for Hydrogen H2</li> <li>• EKIOLA public-private initiative</li> </ul>
<b>Provincial</b>	<ul style="list-style-type: none"> <li>• Gipuzkoa Klima 2050: Gipuzkoan strategy to fight against climate change 2050</li> <li>• Energy sustainability strategy of Gipuzkoa 2050</li> </ul>
<b>Local</b>	<ul style="list-style-type: none"> <li>• Climate Action Plan 2050 of Donostia / San Sebastian</li> </ul>

## 3 Analysis of the interviews

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This section presents the findings of the interviews that were targeted to understand the factors affecting the emergence of and level of engagement to energy citizenship. The first sub-chapter defines the behaviours and goals for each actor. The following sub-chapters presents the findings of the interviews.

### 3.1 Behaviour and goals per actor

The UR BEROA case study focused on community-based engagement in energy transition activities. More precisely, activities related to joint energy production and consumption for district heating and cooling, as well as the transition of the energy cooperative towards renewable energy sources and enhanced energy efficiency, are at the core of the case study analysed.

In this framework, the overarching societal goal identified before defining the specific behaviours and goals of the actors involved, is the increase of shares of renewable energy and greater energy efficiency in district heating and cooling.

Behaviours and goals per actor were defined based on four criteria sets in the theoretical framework for assessing the conditions upon which the emergence of energy citizenship might arise in specific settings and for specific actors (GRETA D1.3<sup>6</sup>), namely:

1. First criterion: The **action** to perform interest (the behaviour). This is related to the problem of distinguishing between behaviours and events that may be the outcomes of those behaviours. To secure this differentiation the behaviour is divided into single actions and behavioural categories. Single actions are specific behaviours performed by an individual (e.g., eating, reading, writing, running, buying, investing, installing, etc.), while behavioural categories are composed of a set of single actions (e.g., dieting, raising funds, stealing, recreational activity, developing or supplying clean technologies, etc.). Outcomes are the result of single or behavioural categories (e.g., slimming, success in exams, recycling garbage, protecting the environment, reduction of CO<sub>2</sub>, etc.).

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<sup>6</sup>Montalvo, C.(2022). Guidelines and protocols for GRETA case study implementation D1.3 of the Horizon 2020 project GRETA, EC grant agreement no 101022317, The Hague, The Netherlands.



2. Second criterion: The **target** of the behaviour (object, subject, etc). The second criterion is the target (i.e., object, subject, institution, etc.) towards which the behaviour is directed.
3. The third criterion: The **time** when the action took, should or would take place (past, how long ago? current (this week, month, etc.), and future (in six months, one year, two years, etc).
4. The fourth criterion: The **situational context** in which the behaviour occurs or is supposed to occur (e.g., in the household, in a governmental agency, in a company, in the city, etc.).

Three different typologies of actors were identified in the UR BEROA case, that is, citizens, policymakers, and suppliers. Within the policymaker typology, policymakers at different governance levels were identified as engaged in the case study and different associated behaviours and goals were defined for them. Similarly, two different supplier types were distinguished, and different behaviours and goals defined.

**Table 3: Actors, and their associated behaviours and goals**

Actor	Associated behaviour
<b>Citizens (homeowners)</b>	<p>Citizens that are engaged in the energy cooperative. They are mostly more engaged than other citizens which are not part of the energy cooperative.</p> <p>Behaviour to reach the societal goal of being climate neutral by 2050: <i>Join with my neighbours to produce energy for joint self-consumption. This year, then two and five years.</i></p> <p>Likely individual goal/ professional motivation: <i>Comfort, economic savings, community building.</i></p>
<b>Policymaker (municipality):</b>	<p>Policymakers that are responsible for the energy transition in the municipality, or that are responsible for urban planning.</p> <p>Behaviour to reach the societal goal of being climate neutral by 2050: <i>Promote district heating initiatives in San Sebastian. This year, then two and five years.</i></p> <p>Likely individual goal/ professional motivation: <i>Re-election, compliance with political agenda, recognition of the environmental and energy performance of San Sebastian.</i></p>
<b>Policymaker (regional energy agency)</b>	<p>Policymakers that are responsible for the energy transition in the Basque Country; implement support mechanisms for citizens and companies in energy transition matters.</p> <p>Behaviour to reach the societal goal of being climate neutral by 2050: <i>Provide financial support to renewable energy cooperatives in the Basque Country. This year, then two and five years.</i></p>



	Likely individual goal/ professional motivation: <i>Compliance with political agenda, reduce CO2 emissions.</i>
<b>Policymaker (national ministry in charge of ecological transition)</b>	<p>Responsible for the energy transition policies in Spain.</p> <p>Behaviour to reach the societal goal of being climate neutral by 2050: <i>Establish mechanisms to support the active participation of citizens in the energy transition. This year, then two and five years.</i></p> <p>Likely individual goal/ professional motivation: <i>Compliance with political agenda, reduce CO2 emissions, re-election.</i></p>
<b>Supplier (UR BEROA)</b>	<p>Energy cooperative providing energy services to its members; not an official energy community.</p> <p>Behaviour to reach the societal goal of being climate neutral by 2050: <i>Implement clean energy sources (PV and hydrogen) in our energy production system. This year, then two and five years.</i></p> <p>Likely individual goal/ professional motivation: <i>Ensure cooperative's economic and social sustainability, services optimisation, and compliance with environmental goals.</i></p>
<b>Supplier (technological supplier)</b>	<p>Provides technical/technological support to the energy cooperative.</p> <p>Behaviour to reach the societal goal of being climate neutral by 2050: <i>Provide technical/technological support to URBEROA in terms of energy efficiency and the adoption of renewable energies. This year, then two and five years.</i></p> <p>Likely individual goal/professional motivation: <i>Profitability, strong alliance, new markets</i></p>

### 3.2 Positive and negative outcomes associated with engaging in GRETA

The objective of this section is to describe what kind of positive and negative outcomes different actors expect from engaging in the analysed behaviours. The expected outcomes are discussed first from the perspective of members of UR BEROA, and then the views of policymakers and suppliers are described.

The **UR BEROA members** consider that there are three types of advantages related to their membership to an energy cooperative, namely, personal, economic, and environmental benefits.

The personal benefits are related to non-monetary benefits such as comfortability and quality of energy supply, and availability and quality of the related services. Also, a

higher level of perceived safety of the district heating system compared to individual gas boilers was mentioned as a benefit. Some of the respondents mentioned a sense of autonomy in the energy-related decision-making processes, in opposition to the dependency on large energy companies: *“There is no need to depend on others to guarantee security of energy supply”*. The perceived energy independence consists of self-planning and self-management of the energy generation, purchase and consumption, selection and switching to other energy sources, or diversification of the energy supply related services of the cooperative. For some UR BEROA members the personal benefits were associated to the opportunity to participate in a collective action, and to collaborate and have social interaction with neighbours. Others also mentioned self-satisfaction from doing good for the environment.

The perceived economic benefits include access to cheaper energy through joint energy acquisition benefitting from economies of scale, and the possibility of gaining financial benefits related to sales of excess energy to the grid. The benefits are also associated to joint investments on renewable energies that would not be possible at individual level. The environmental benefits that the UR BEROA members mentioned were related to the opportunity to produce cleaner energy and to participate in the defence of the environment and the mitigation of climate change.

Apart from the benefits, the UR BEROA members mention challenges and disadvantages related to the analysed behaviour. Firstly, it is considered that understanding the activities of the cooperative can be complex and needs a certain level of dedication. For instance, at first sight it may seem that the maintenance and management costs of the cooperative are high, although this is compensated by the price of the energy, which is lower than market price. Secondly, the interviewees are concerned about the low degree of participation of the members in the energy cooperative in general, and especially in terms of a lack of volunteers for the steering committee positions of the cooperative. Some respondents associate this lack of commitment to a general growth of individualistic attitudes and a decrease of social cooperation and sharing culture. Thirdly, many of the interviewees see the challenges related to communication and reaching a consensus among the neighbours. This is seen to be associated to different needs of the members of the cooperative and can potentially complicate reaching social cohesion in the cooperative and leave room for conflicts to arise.

For **policymakers**, the most important outcomes are related societal and environmental benefits associated to the production of cleaner energy and lower carbon dioxide emissions. The policymakers highlight the role of energy cooperatives for enhancing energy empowerment of citizens and supporting a fairer energy transition through citizens' participation. The energy cooperatives are also associated to benefits achieved from the increased deployment of renewable energy sources in the energy system, enhanced energy sovereignty, and a more flexible and secure energy system. Some of the policymakers consider that energy cooperatives can be seen as a tool for fighting

against energy poverty and reducing energy transmission losses due to a more localised energy production and consumption. The policymakers mention reputational benefits too, derived from having pioneering projects in the territory, as UR BEROA is the first private district heating system in Donostia-San Sebastian and in the Basque Country region. From the perspective of policymakers, the economic benefits are associated to lower energy costs for citizens and already shorter returns on investments of renewable energy projects, yielding to repayment or amortisation terms below five years.

The policymakers see also challenges and disadvantages: reaching and engaging citizens is difficult because there is a lack of interest from citizens and a low level of understanding energy transition issues. The policymakers see business and reputational risks in terms of potentially unsuccessful projects to which public administration has dedicated time and resources. There are also disadvantages associated to the lack of district heating tradition in Spain, resulting in costly and time-consuming endeavour to convince housing developers and buyers on the benefits of district heating. Policymakers see also challenges related to the costs of the projects and technical difficulties in promoting and implementing district heating systems in already built environment.

For the **UR BEROA's suppliers**, the economic benefits are clear: lower energy costs. This is seen to be the most important benefit of an energy cooperative, especially in longer-term, and anticipating the tax penalisation of fossil fuels. Production and consumption of cleaner energy is seen as a main positive environmental outcome related to energy cooperatives. Benefits related to social responsibility of the company are considered as professional or social benefits of the suppliers.

The suppliers see also disadvantages associated to energy cooperatives. These include technological challenges related to scaling and adjusting some of the technological solutions available to the needs of the cooperative, and for example to potential inclusion of hydrogen as an energy vector of the cooperative. Still in some cases higher costs of green energy compared to conventional fuels is also a disadvantage which may jeopardise the financial profitability of the cooperative investing in renewable energy technologies. The suppliers also mention large infrastructure investments as a challenge in terms of related economic risks and convincing all the members to take the investment decision. In general, the joint decision-making of the cooperative and large diversity of opinions can be seen as a disadvantage but also as a benefit of joining an energy cooperative. The suppliers see the constant changes in public policy and subsidies as an important risk, especially from the perspective of large infrastructure investments.

### 3.3 Norms associated with engaging in GRETA

All actors are usually guided or limited by the dominant social norms and values. Within its context, each actor perceives and is affected by their referents (i.e., peer citizens, community, staff, other businesses, etc.) in different ways. This section describes the social norms present in the UR BEROA case study and how these norms affect differently to the different actors involved.

As far as the **UR BEROA members** are concerned, intrinsic motivations appear as one of the main factors guiding the analysed behaviour, that is, joining with other citizens and neighbours to produce energy for joint self-consumptions. The willingness “*to do things right for the environment*” along with self-engagement with collective energy actions, are the guiding values of the analysed behaviour for most of the citizens interviewed. Community values play a key role for the engagement in the analysed behaviour, since most of the interviewees mention the significance of acting collectively towards cleaner energy in opposition to individualist positions and values. The family and the community can also be mentioned as normative references, being the education within the family one of the triggers for the environmental awareness of the interviewees and, ultimately, the values behind the analysed behaviour.

UR BEROA members consider that the support of different public institutions and administrations that are promoting collective energy actions is helpful, but it is not directly affecting their decision to engage in the analysed behaviour. Most of the UR BEROA members interviewed were members of the energy cooperative years before the promotion of such initiatives by public institutions started. Therefore, support from public institutions cannot be considered a motivation for those citizens, rather than a confirmation of their values.

Negationist positions from some groups within their peers are also mentioned by the interviewed UR BEROA members. These citizens hold opinions denying climate change or the relevance of collective action to trigger the decarbonisation of the energy system. However, these opposing values seem not to significantly affect the analysed behaviour and do not pose a barrier for action. The opposition from or competition with traditional energy utilities is seen as more problematic by the UR BEROA members because these companies confront collective action values with their own business interests. In this sense, these companies are considered as a threat for collective energy action and as representatives of individualist values and culture.

In the case of the **policymakers**, the mandate and support from other policymakers is mentioned as influential for the different analysed behaviours. The European Union mandate to increase citizens’ participation in the energy transitions affects national policymakers’ behaviour in terms of pushing them to establish mechanisms to support the active participation of citizens in the energy transition. Similarly, the

support from regional level policy makers facilitated the decisions of local policymakers to promote district heating initiatives.

Policymakers, however, find opposition for their behaviour from different actors. First, there is an initial reluctance from citizens towards innovative energy projects, such as district heating, due to a lack of tradition and knowledge on district heating in Spain. Similar opposition is found with regards to some renewable energy installation projects, where some parts of the society reject those projects due to their environmental, visual or social impacts. Second, policymakers sense some opposition from traditional energy utilities in relation to the promotion of citizen participation in the energy market. The promotion of citizen initiatives, such as energy communities, pose some conflicts for the business interests of those companies and, therefore, disapprove policymakers' behaviour of promoting such initiatives.

The **suppliers** interviewed in the UR BEROA case study state that their analysed behaviours are mainly influenced by the citizens involved in the energy cooperative, who push towards decarbonising the energy production infrastructure. In addition, there is political and reputational pressure to adopt green technologies, supported by different public administrations. The interviewed suppliers are confronted with the opposition of their own clients or members, who prioritise economic factors over environmental ones or who are not satisfied with the quality of the service. In this sense, the interviewed companies argue that the lack of energy literacy of citizens is triggering this opposition towards greener energy solutions.

### 3.4 Agency associated with engaging in GRETA

This section describes the type of institutional support available in the UR BEROA case study, as well as resources, skills, knowledge, and information existing or needed to engage in an energy cooperative.

First of all, the **UR BEROA members** see that a certain level of awareness is needed. Awareness of climate change and energy transition, and urgency and importance of taking action, and having initiative to change are seen as important factors which influence the engagement in an energy cooperative. Also, basic energy literacy and energy awareness i.e., being able to understand the role of energy in everyday life and having a basic level of awareness of one's own energy consumption, are considered important facilitating preconditions for joining an energy cooperative.

In respect to institutional support, the UR BEROA members value the financial aid from the public sector received through subsidies or grants, as well as the support from public administration in terms of permission granting and guidance received related to e.g., the enlargement of the cooperative. They also consider the support from professional organisations, such as research organisations or technology consulting

companies, important in terms of receiving up to date technical information needed and expert advice supporting the decision making of the cooperative.

Time is an important resource needed for participating in the UR BEROA energy cooperative. The management of the cooperative is carried-out on a voluntary basis, and time is a scarce resource needed not only for assisting the formal meetings, but also for searching and studying relevant information for being able to understand and make informed decisions benefiting the cooperative. The potential enlargement and investments of the cooperative request also financial resources in terms of own contributions or external financial support in form of public subsidies.

In terms of skills, knowledge, and information, the UR BEROA cooperative members consider that a basic understanding of the functioning, management, and benefits related to an energy cooperative are relevant. Several interviewees also mentioned that knowledge about different technology solutions (e.g., renewable technologies, digital technologies, technologies improving building energy efficiency) available for the cooperative, and enhanced understanding of their environmental and economic impacts (e.g., total investment costs or amortisation schedule), would make the management and decision-making of the cooperative much easier. Also, knowledge about the legal and regulatory aspects influencing the operations of the cooperative, as well as public policy and subsidies available for the cooperative are important pieces of knowledge needed for the effective functioning of an energy cooperative. In addition, many of the cooperative members highlighted the curiosity to learn and willingness and capacity to collaborate with neighbours and with technical experts as an essential skill needed. At the end, the energy cooperative is about collaboration to jointly produce and consume energy, and without effective collaboration and collective decision-making, the cooperative ceases to exist. The UR BEROA members participating in the management board of the cooperative also highlight the efficient collaboration between the management board and the technical office managing the day-to-day activities of the cooperative.

From the perspective of UR BEROA members there are also limitations and constraints for the further development of the cooperative. They see that there are still regulatory constraints in Spain in relation to energy co-generation, leading to an overall limited progress towards distributed energy generation. This is partially seen as a result of active lobbying of large, conventional energy sector companies. Others see that there are still important issues related to the viability of certain renewable energy technologies acting as a barrier for their wider acceptance. For the energy cooperative, the challenges are related to technical limitations of the current co-generation system used, which does not allow a large increase in cooperative member base. Some of the UR BEROA members see the lack of dedication of the current members of the cooperative and conflicts among the members as a hurdle for further development, whereas others consider that the cooperative needs new members in general, and new active members in particular. There is a need for renewal in the management board of



the cooperative and one of the challenges is to find active members of the cooperative willing to take over the duties of the current management board, which is largely formed by members that have been involved in the cooperative since its establishment.

Personal history and family habits related to the efficient use of energy and resources are influencing the decision to join an energy cooperative. The UR BEROA energy cooperative members consider also that previous experience related to district heating systems, or cooperatives in general, not necessarily related to energy, are relevant factors impacting the propensity to join an energy cooperative. Some interviewees also mention education and professional career as factors influencing the decision. Understanding the functioning of the energy cooperative and benefits related to it, might be easier for a person with a higher education or profession in relevant fields (related to energy or environment, but also to management, law, etc.).

The national, regional, and local **policymakers** support the green transition by designing and implementing policy initiatives. They consider experiences and views of citizens and evidence from real situations at local level as important sources of information. Particularly, information about previous citizen participation processes is relevant for designing new support mechanisms. Some of the interviewed policymakers also wish to have better knowledge and tools to involve and manage citizens participation in policymaking processes. The policymakers need better understanding of the financial viability of technologies and projects, as well as enhanced insights of related business models. They also need timely information and knowledge about EU regulations and understanding impacts of it at other governance levels. In this respect, organisational skills, and mechanisms to coordinate among different levels of public administration are considered relevant. In terms of resources, policymakers need financial means through specific budget allocations, human resources, and time. The policymakers see the political will to increase citizen participation in the energy transition as an important opportunity, and the current momentum with the Next Generation Funds as a window to develop a policy framework fostering this development. Raising the awareness of citizens on the impact they can make in the energy transition is important, since better informed citizens, with higher energy literacy enable more active citizen participation. Also, coordination and collaboration among different policy departments is seen as a current constraint, but also as an improvement opportunity for future developments.

From the perspective of **suppliers**, including the administrative team, responsible of the operative management of the cooperative, and technology solution provider working with the cooperative, the experiences and examples drawn from other energy communities are considered very valuable. Also, information and knowledge about technological development trajectories and economic viability of different technological options and their adaptability in community scale projects are necessary for the efficient management of the energy cooperative. Similarly, awareness of and familiarity with constantly updated legislation and regulations is needed.

The suppliers of the energy cooperative necessitate human and financial resources. The administrative office lacks human resources in terms of having an overload of work but also in terms of a lack of certain areas of knowledge and skills for which they need to rely on external expertise derived from technology manufacturers or installers. The suppliers see public subsidies as important financial resource for infrastructure investments, but also for prior viability studies. Besides financial subsidies, the public organisations from different governance levels (EU, national, regional, and local) are seen as important source of support and guidance. Also, the support received from technology manufacturers and installers is essential, together with the support received from technical consulting companies and from other energy communities.

The suppliers of UR BEROA see the technological development level and viability of certain energy technologies as a constraint influencing the investment decisions of the cooperative. They also consider that the constant flux of the legislation affecting the energy communities acts as a barrier for further investments, and in general the legislation should be better defined. The potential economic disadvantage of cooperative energy generation for its members is a concern for the suppliers, as well as profitability and costs of the operations of energy cooperative that may at the end be decisive factors for continuing the functioning of an energy cooperative. Successful previous large infrastructure investments of the cooperative are considered as a relevant past experience, decreasing the reluctance for further investments.

### 3.5 Relational model associated with engaging in GRETA

Relational models represent the mediation interactions between the actors engaged in the UR BEROA case study and the different analysed behaviours. This section describes the dominant model that moderates the relationships between the different actors and the preferred model of interaction expressed by each of them.

According to Relational Model Theory (Haslam 2004; Dien et al., 2018)<sup>7</sup>, there is a sort of algebra of relationships that explains why some relations endure or collapse in the pursuit of common objectives. The Relational Model Theory defines four types of relations:<sup>8</sup> Community Sharing (CS) relationships where some bounded groups of people are conceived as equivalent, undifferentiated and interchangeable such that

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<sup>7</sup> Haslam, N. (Ed.). (2004). *Relational models theory: A contemporary overview*, Psychology Press; Dien, J., Karuzis, V., & Haarmann, H. J. (2018). Probing culture in the head: the neural correlates of relational models. *Social Neuroscience*, 13(6), 648-666.

<sup>8</sup> Fiske, Alan P. (1992). "The four elementary forms of sociality: Framework for a unified theory of social relations". *Psychological Review*. 99 (4): 689–723. doi:10.1037/0033-295X.99.4.689. PMID 1454904.



distinct individual identities are disregarded and commonalities are emphasised; Authority Ranking (AR) relationships, which are asymmetric relationships where people are linearly ordered along some hierarchical social dimension; Equality Matching (EM) relationships, characterised by different forms of one-for-one correspondence and where the parties concerned aim at ensuring a balanced relationship; and Market Pricing (MP) relationships that revolve around a model of proportionality where people attend to ratios and rates and relevant features are typically reduced to a single value or utility metric that allows the comparison (e.g., the price of a sale).

The interviewed **UR BEROA members** perceive the relational model with policymakers mainly as a distant relation model. While some interviewees consider it as a unilateral relation where policymakers set the rules and citizens comply with those (AR relationship), others consider that, especially with regional policymakers, there is a collaborative relation in some respects. However, the initiative for these collaborative relations is driven mostly by the members of the UR BEROA cooperative, who approach public administration looking for support for their projects. Thus, there is a bottom-up intent to create more a collaborative relational model (EM relationship).

Interviewed UR BEROA members also sense a lack of support and understanding from some policymakers on the characteristics and relevance of the analysed behaviour and express that a lack of trust on the motivations and interests of policymakers is shown. Interviewees expect a bigger contribution from public institutions, in the form of training or subsidies, to continue shaping collective action in defence of the environment. In addition, some detachment towards policymakers is expressed as some interviewees stated that *“we drive the energy transition, not the government as it should be”*.

When questioned about the type of relation that they would prefer with policymakers regarding the analysed behaviour, interviewees clearly show a preference for a relationship more aligned with EM relationships, where more collaboration, support, understanding, and complicity is shared with policymakers. Besides, UR BEROA members expect policymakers to be frontrunners in the promotion of the analysed behaviour, setting examples for citizens. Therefore, more leadership and exemplarity are also required from policymakers.

Regarding the relationships between UR BEROA members and businesses, Market Pricing (MP) relationship seem to be dominant. UR BEROA members mention that supplier-client relation is dominating their relationship with energy utilities providing electricity to their homes. In addition, the interviewed members of UR BEROA, mention that there is a competition-based relationship with gas supplying companies, because they share the same market with the UR BEROA energy cooperative (supplying heating and hot water) and compete on attracting clients to their businesses.

When asked about the preferred relationship with businesses, there is a variety of viewpoints, but they tend towards relations aligned with Equality Matching. In this sense, the need of having more transparent information from energy companies or being equally treated is highlighted. Other interviewees go a step further and would prefer having a Community Sharing relationships, driven by collaboration, where projects are developed jointly with businesses.

The answers of **policymakers** concerning the existing relationship with citizens, point towards Authority Ranking relationships. Most interviewees mention that their relationship with citizens is based on awareness rising, dissemination or advertising activities, showing a top-down approach of policymakers towards citizens. However, at national level, it seems that this relationship slightly shifts towards more collaborative relationship, through the implementation of public consultation processes open for citizens or the development of pilot projects with targeted citizen groups to assess the impact of certain policies on those groups.

The interviewed policymakers seem to be satisfied with the current relationship with citizens. They did not mention any preferred relations, other than the improvement on reaching the targeted groups in their various activities.

As for the relationship of policymakers and business, the answers of the interviewed policymakers show an Authority Ranking relationship, where the interaction between these actors is very formal and regulated, mainly based in public procurement and other formal procedures (e.g., public consultations and calls for interest). When asked about the preferred relationship, policymakers seem to be satisfied with the current situation. However, some of them stated that they would like to have more open collaborations or debate spaces with companies, without private or purely economic biases.

The interviewed **suppliers** hold a singular relationship with the citizens involved in the UR BEROA case study, since they are contributing to their collective energy action. On the one hand, UR BEROA is a supplier providing energy to its clients. But being a cooperative, it is composed by its own client/members. On the other hand, the other business interviewed provides services to UR BEROA and thus, its involvement in the evolution of the cooperative is rather high. In this framework, the interviewees show that their relationships with citizens is closer to Community Sharing or Equality Matching than Market Pricing, where citizens act as users or clients of a service but at the same time, they manage and take critical decisions regarding the company that provides that service.

When asked about the preferred relationship of these businesses with citizens, they mention they would prefer having a more collaborative relationship with citizens (those who are members of the cooperative), with a more participatory and proactive attitude of those citizens. With regards to citizens which are not members of the cooperative, the interviewees show a more business-driven mindset, in the sense that

they would like to attract more citizens to their business as a means of increasing their turnover and optimising costs.

The relationships between suppliers and policymakers are seen differently by the interviewed companies. Whereas the dominating relation between these two actors seem to be Authority Ranking relationship in the view of some interviewees (where the relationship is based on formal and bureaucratic procedures), others refer to their relationship as a bottom-up and support relationship. The latter state that they contact different public institutions in search for support and that this support is ultimately framed by formal procedures and mechanisms.

As for their preferred relationship with policymakers, the interviewed suppliers state that they would rather appreciate a more reciprocal relation (Equality Matching relationship) characterised by continuous dialogue and more support for collective energy models.

### **3.6 Asymmetries analysis across actors**

The concept of behavioural asymmetries describing traits in cognitive, normative, instrumental and relation aspects provides a definition of the structure of the determinants across groups of actors and the potential sources of convergence towards energy citizenship engagement. In this section, the differences and similarities in behavioural drivers and barriers of different groups of actors are analysed, identifying potential sources of mismatch between actors towards common goals.

Table 4 shows the behavioural drivers and barriers of the different actors of the UR BEROA case study.

**Table 4: Matrix of behavioral patterns and asymmetries- UR BEROA case study**

	UR BEROA members	Policymakers	UR BEROA suppliers
<b>Outcome (attitude)</b>	<p>Social benefits:</p> <p>Self-management and self-planning, energy self-sufficiency and autonomous decision making</p> <p>Quality of supply, and quality and availability of services with a higher level of safety and comfortability</p> <p>Social interaction, collaboration, and participation in a collective action</p> <p>Self-satisfaction</p>	<p>Social benefits:</p> <p>Having a pioneer project</p> <p>Support the creation of energy communities</p> <p>Citizen’s energy empowerment</p> <p>Energy Sovereignty and local energy production</p> <p>Savings in energy losses</p> <p>Fight the energy poverty and supporting a fair energy transition on the base of the citizens’ participation</p> <p>More flexible and secure energy system with an increasing of RES in the system</p>	<p>Social benefits:</p> <p>Benefits related to social responsibility</p>
	<p>Economic benefits:</p> <p>Cheaper energy</p> <p>(Benefits from) Joint energy acquisition and joint investments in renewable energies</p> <p>Sale of excess energy</p>	<p>Economic benefits:</p> <p>Lower energy costs</p> <p>Return on investments</p>	<p>Economic benefits:</p> <p>Lower energy costs</p>
	<p>Environmental benefits:</p> <p>Production of cleaner energy</p> <p>Defence of climate change</p>	<p>Environmental benefits:</p> <p>Production of cleaner energy</p>	<p>Environmental benefits:</p> <p>Production and consumption of cleaner energy</p>

<b>SN (social norm)</b>	Education and family culture on environmental awareness	Mandate and support from other policymakers (multi-governance influence)	Push from clients/members towards decarbonising the energy production infrastructure
	Individual self-engagement with energy collective action	Opposition from citizens: lack of tradition or knowledge on district heating projects	Political and reputational pressure to adopt green energies
	Intrinsic motivation	Opposition from citizens: installation of controversial renewable energy installation projects	Opposition from clients/members who favour economic factors over environmental factors
	Support from several public administrations	Opposition from traditional energy utilities: confronting private business interests and citizen participation in the energy market	
	Opposition from citizens with negationist positions on climate change		
	Opposition from traditional energy utilities		
<b>AG (agency)</b>	Resources needed: (Free-)time needed for dedicating to the cooperative (meetings, information seeking and studying) Financial resources	Resources needed: Financial means through specific budget allocations Human resources Time	Resources needed: Financial resources Human resources
	Institutional support: Financial support (grants, subsidies), permission granting, and guidance and	Institutional support: Coordination and collaboration among different policy departments, and different policy governance levels	Institutional support: Financial support and guidance from public administration

	non-monetary support from public administration		Support received from technology manufacturers, installers and consulting companies
	<p>Information, knowledge, and skills:</p> <p>Awareness of climate change and urgency of the energy transition</p> <p>Basic understanding of functioning, management, and benefits related to energy cooperative</p> <p>Knowledge of related legal, regulatory and policy frameworks</p> <p>Curiosity to learn</p> <p>Willingness to collaborate with neighbours</p>	<p>Information, knowledge, and skills:</p> <p>Views of citizens and evidence from real situations at local level</p> <p>Skills and tools to involve and manage citizens participation</p> <p>Financial viability of technologies and projects</p>	<p>Information, knowledge, and skills:</p> <p>Experiences and examples drawn from other energy communities</p> <p>Technological development trajectories and economic viability of different technological options</p> <p>Information about relevant legislation and regulation in force</p>
<b>RM (relational model)</b>	<p>With policymakers: mainly Authority Ranking (AR) relationships are existing. Community Sharing (CS) relationships preferred.</p> <p>With business: Market Pricing (MP) relationships are existing. Community Sharing (CS) or Equality Matching (EM) relationships preferred.</p>	<p>With citizens: mainly Authority Ranking (AR) relationships are existing. Satisfied with existing relationship.</p> <p>With businesses: mainly Authority Ranking (AR) relationships are existing. Satisfied with existing relationship but more open collaboration or debate spaces wanted.</p>	<p>With citizens: a mix of Equality Matching (EM) than Market Pricing (MP). More collaboration and participation of citizens preferred.</p> <p>With policymakers: mainly Authority Ranking (AR) relationships are existing. Equality Matching (EM) relationship preferred.</p>

The different actors show a symmetry of expected **positive and negative outcomes** from engaging in the analysed behaviours. Societal benefits in terms of improving the citizens' involvement to energy transition, more local decision-making, and a better quality of the energy supply are mentioned as positive outcomes by all the actor types. Similarly, economic benefits arising from lower energy costs, and environmental benefits in terms of production of cleaner energy, are mentioned by all the different actors. In contrast to the other actor groups, the UR BEROA's members are motivated by intrinsic self-satisfaction and satisfaction derived from participation and social interaction with their peers.

In terms of **social norms**, all the actors agree that policy framework provides an important backbone supporting the green transition. From the perspective of the UR BEROA's members, the policy framework is seen as supporting and guiding norm, whereas from the business perspective it is seen as a norm creating pressure to adopt green energies. The policymakers themselves see that policies and policymakers in other governance levels create a mandate, but also provide support. The suppliers of UR BEROA see the push from their clients as an important norm towards decarbonising the energy production infrastructure. The UR BEROA members see their own experiences and intrinsic motivations of doing good for the environment as important norms. Differently from UR BEROA's members and suppliers, the policymakers do not mention support or pressure from citizens as a norm that drives the transition.

The UR BEROA members also perceive opposition from other citizens, particularly those with negative attitudes towards climate change. Similarly, the policymakers receive opposition from the citizens e.g., for renewable energy installations, or in terms of resistance and reluctance to change their energy behaviour resulting from a lack of knowledge or existing examples. The UR BEROA's suppliers perceive opposition from citizens as well, especially from some of their clients, who favour low-cost energy over environmental benefits. Traditional energy companies are seen as opponents by the members of UR BEROA and policymakers. The suppliers of UR BEROA are not mentioning other companies as a source of opposition, showing an asymmetry between the actors.

**Agency**, understood as the resources and institutional support as well as information, knowledge and skills needed, shows largely symmetrical patterns among the actors. Time and financial resources are mentioned by all the actors, and in addition policymakers and companies mention well-trained staff with needed competences and skills as an essential resource. In terms of institutional support, again all the actors underline the importance of public administration for providing financial support, but also for institutional support in permission granting, guidance, and non-monetary support. Policymakers also mention the importance of coordination and collaboration among different policy departments and different policy governance levels. In addition

to policymakers, the UR BEROA suppliers value the support received from their peers i.e., other companies.

In respect to information, knowledge and skills, the UR BEROA members underline the awareness of climate change and urgency of the energy transition, as well as knowledge about functioning of an energy cooperative and related legal and policy aspects. In addition, they mention curiosity to learn and willingness to collaborate with their neighbours. Policymakers in turn, want to understand better the realities of citizens and have improved skills and tools to manage participatory processes involving citizens. Both policymakers and UR BEROA's suppliers mention enhanced knowledge about the technologies and their viability as relevant information. The suppliers value the knowledge about relevant legislation in force as well as examples drawn from other energy communities.

The **relational model** demonstrates some important asymmetries between the actors, especially when preferred relationships are considered. The UR BEROA members see that their relationship with policymakers is best characterised by the Authority Ranking (AR) relationship, although they would prefer to have a Community Sharing (CS) relationship with policymakers. Policymakers in turn, consider that their existing relationship with citizens is an AR relationship, and they are satisfied with the existing relationship. This implies that the UR BEROA's members would expect different types of support from policymakers, but policymakers do not see a need for this change, showcasing an asymmetrical preferred relationship.

The UR BEROA's members have a Market Pricing (MP) relationship with companies, and they would prefer to have a Community Sharing (CS) or Equality Matching (EM) relationship. The suppliers of UR BEROA currently consider changing towards a mix of EM and MP relationship with citizens. They would however prefer to have more collaboration and participation of customers, inclining towards a Community Sharing relationship. Thus, the members and suppliers of UR BEROA show symmetry in terms of currently having a MP relationship, and both preferring to have more a CS-type of relationship. The suppliers however see that they already have an EM relationship, whereas UR BEROA's members consider an EM as their preferred relationship with suppliers.

The suppliers of UR BEROA consider having an Authority Ranking (AR) relationship with policymakers, but they would prefer to have a more Equality Matching (EM) type of relationship. Policymakers agree upon currently having an AR relationship, but they do not see the need for a change, considering the AR as sufficient showing an asymmetrical preferred relationship.



## 4 Discussion and reflection

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This section aims at reflecting on the findings of the background study of the UR BEROA case (Chapter 2) and of the interviews conducted with the different actors involved (Chapter 3). It provides an assessment of the drivers and barriers for energy citizenship and reflects on the main results of the UR BEROA case study that are relevant for policymakers.

### 4.1 Drivers and barriers and the role of agency and relations among actors in energy citizenship

The UR BEROA case study shows that individuals can play a proactive role in engaging with the energy transition when certain context conditions are met. The case shows how individuals can be drivers of the energy transition when they take collective action and join with peers to set up their own energy cooperative and it shows that this initiative, although somehow supported by different policies, can arise and be driven by citizens. However, for this initiative to happen, some baseline conditions are needed: a set of values that motivates individuals to take collective action towards more sustainable behaviours, a certain level of education and knowledge regarding the energy system and the role of citizens in it, and the financial and other type of resources that allow citizens to invest and set up collective energy initiatives.

The analysis of the UR BEROA case highlights the need of a certain level of agency needed by citizens to engage in the energy transition. First, a certain level of awareness of climate change and energy transition is needed, and an awareness for the urgency and importance of taking action. The case also shows the relevance of the willingness to act collectively or in collaboration with other citizens, against more individualistic behaviours. This decision is very much influenced by the socio-cultural landscape and background of the citizens involved but also on the understanding of the functioning, management, and benefits related to energy cooperatives. Also, basic energy literacy and energy awareness i.e., being able to understand the role of energy in everyday life and having a basic level of awareness of one's own energy consumption, facilitates the participation of citizens in collective energy initiatives.

The main reasons for UR BEROA members to engage in collective energy action, or more specifically, being part of an energy cooperative in the UR BEROA case, are threefold. On the one hand, motives related to perceived personal benefits are important. These benefits relate to having higher autonomy in the energy-related decision-making process and to being able to self-plan and self-manage the energy generation, purchase and consumption. This self-management enables a higher quality of the energy supply and a higher level of comfortability. Also, a higher level of safety of the district heating system compared to individual gas boilers is considered as a

benefit. Second, economic benefits are also drivers for citizens to engage in collective energy initiatives. They mention the opportunity to perform joint investments in renewable energies that would not be possible on an individual level or the possibility of accessing to cheaper energy through joint energy acquisition benefitting from economies of scale. Finally, the environmental benefits are also drivers for engaging in the energy transition, in the sense that the members of UR BEROA perceive that by producing cleaner energy they contribute to fight against climate change.

Besides these intrinsic motives, the institutional support plays a key role for enabling an active energy citizenship in terms of providing financial aid from the public sector or offering technical information or expert advice from research and technology organisations. This later contributes to better-informed decision-making processes of the members of the energy cooperative. In addition, the role of public institutions is considered relevant beyond their monetary support. Those institutions can contribute to wide spreading existing collective energy initiatives, emphasising their benefits and underpinning their reputation in the eyes of society.

Despite the perceived benefits and variety of motives for engaging in an energy cooperative, the members of UR BEROA mention several barriers or challenges for taking collective action. One of the challenges mentioned is the lack of time for collective projects. Despite having the support of the technical managing office, the members of the cooperative need to dedicate a considerable amount of their free time to the management of the initiative. This derives on the lack of involvement of many members of the cooperative and there is a risk of not being able to have generational change on the management bodies, with enough younger members involved in those bodies. Therefore, the personal and time-related effort that requires being part of such an initiative can pose a barrier for many people to participate, especially women who are traditionally less involved in energy-related issues within the family structure.

Reaching a strong social cohesion within the cooperative is also seen as a challenge, as different needs of the members arise which makes it difficult to find consensus and take decisions. The diversity of opinions and interests, as well as the different understandings of the activities of the cooperative, complicates the management of the cooperative.

The main reasons for policymakers to engage in the analysed behaviour differ substantially from the motives or drivers mentioned by the citizens of the UR BEROA case study. Policymakers are mainly driven by environmental objectives set in the different policy agendas, which mostly relate to decreasing CO<sub>2</sub> emissions, enhancing the energy empowerment of citizens and their participation in the energy system, to supporting a fair energy transition or to increase the use of renewable energy sources in the energy system. In addition, policymakers associate economic benefits to lower energy costs for citizens and already shorter return on investments of renewable energy projects.

Policy-makers also identify different needs in terms of skills, knowledge, resources and support from other institutional actors. Information on citizens participation processes and skills for designing new support mechanisms for citizens is considered essential, particularly having better knowledge and tools for setting up and managing citizen participation in policy-making processes. Organisational skills, and mechanisms to coordinate among different levels of public administration and departments are considered relevant, as well as better understanding of the technologies involved and the financial viability of the projects.

One of the most relevant challenges that policy-makers face is the difficulty in reaching and engaging citizens in a more active energy citizenship. They perceive lack of interest from citizens and a low level of understanding of energy transition issues.

As for the suppliers of the UR BEROA case study their main motivation to engage in the analysed behaviours is related to obtaining economic benefits in terms of lower energy costs and reputational benefits related to social responsibility. The challenges that suppliers encounter, on the contrary, relate mainly to technological and investment challenges such as the potential inclusion of new solutions for energy production or the higher costs of green energy compared to conventional fuels. Suppliers also share the opinion of some UR BEROA members when emphasising on the difficulties that the joint decision-making processes of the cooperative and large diversity of opinions pose.

When analysing the relationships between the actors some differences arise, especially in the preferences stated by some of those actors. The main point of discrepancy is on the preferred relationship between citizens and policy-makers, where the members of UR BEROA aim for a more collaborative relationship whilst, policy-makers seem to be satisfied with Authority Ranking relationships with citizens. This discrepancy shows a lack of consistency of policy-makers with their own objectives of increasing citizen participation, but also offers space for policy-makers to improve their activities to promote energy citizenship.

In the case of suppliers, both the UR BEROA members and the suppliers agree on their wish to change their current relation (mainly Market Pricing relationship) towards a more collaborative one. Finally, policy-makers and suppliers also coincide on the need of changing their current relationship towards a more collaborative one, moving away from the current Authority Ranking relationship.

## 4.2 The role of policy in energy citizenship

The background study performed in the UR BEROA case study pictures a very comprehensive policy landscape in terms of fostering the participation of citizens in the energy transition at both individual and collective level. Although there is still room to further regulate energy community the existing regulatory framework provides the

grounds to create these entities. However, the lack of a more detail regulation of energy communities and previous regulatory shifts and instability at national level, hinder the wide spreading of those organisations. Citizens are concerned about the possible future shifts of the national policies in relation with energy communities and ask for stability in terms of regulation and the national energy model. The lack of trust of citizens on the stability of the national regulation poses a clear barrier for a more active energy citizenship.

The case study highlights the important role policymakers play in promoting energy citizenship. Policymakers at regional and local level have actively supported UR BEROA in terms of financial support in different technological projects towards a higher degree of decarbonisation of its system. However, their role in fostering the wide spread of energy communities and increasing energy citizenship is more recent and still under development. UR BEROA (and other energy cooperatives in Spain) were born from the need of some collectives to manage their own energy production and consumption but there was not any specific policy framework fostering collective energy action. In some cases, this was derived from a very specific situation as in the UR BEROA case – the bankrupt of the initial energy provider. In other cases, cooperatives were the response to the lack of responsibility from the public sector in the energy sector. Thus, people from peripheral regions started joining in cooperatives to supply with electricity their own homes and businesses. There was no interest from the State nor from private investors to connect those areas to the grid<sup>9</sup>.

More recently, the policy framework explicitly supports the creation of energy communities and a more active participation of citizens in the energy system. However, there is still a lack of awareness and engagement of society in those initiatives. In this sense, policies enabling the increase of energy literacy and increasing awareness on energy citizenship are needed, along with transparent and non-biased information related to the different alternatives for citizens to become more active in the energy system (collective solutions vs. individual solutions, energy communities vs. solutions offered by traditional energy utilities, etc.).

In addition, the UR BEROA case illustrates the importance of having access to technical and technological knowledge in the development of energy citizenship, and particularly for the creation and evolution of collective energy projects. Policymakers have a say on facilitating the access of citizens to this technological knowledge and creating brokerage spaces for those actors to collaborate.

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<sup>9</sup> Heras-Saizarbitoria, I., Sáez, L., Allur, E., Morandeira, J. (2018). “The emergence of renewable energy cooperatives in Spain: a review”. *Renweable and Sustainable Energy Reviews* 94 (2018), 1036-1043.

Similarly, improved coordination, interaction, and collaboration among policymakers at different governance levels and different departments is needed to build the skills and knowledge at public administration level. Alliances and collaboration with technical experts would also increase policymakers' skills for dealing with complex energy-related projects and better understand their feasibility and challenges.

## 5 Conclusion

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The UR BEROA case study provides valuable insights for the GRETA project from the perspective of the role of collective energy action for fostering or increasing energy citizenship. In this regard, the case study focused on three main aspects: first, the motivations and factors that influence the level of engagement of different actors to energy citizenship were analysed. Second, the relations among those actors and how they influence each other was studied and, finally, these insights were contrasted with the current policy framework, deriving to policy recommendations.

The results of the case study show some relevant asymmetries on several of the aspects that can influence the level of engagement of the actors involved. The interviewed members of UR BEROA demonstrate a high level of self-motivation when engaging in collective energy action. They mention their values and the influence of their peers as one of the reasons for their active participation in the energy system, not mentioning policymakers nor companies as critical actors influencing their choices. Although they acknowledge the need of citizens to take an active role, they expect policymakers to take a leadership role and deepen their engagement, both as being drivers of the green energy transition and as supporters of the active participation of citizen in the transition. However, this push from citizens towards a higher leadership is not perceived by policymakers. On the contrary, they feel the opposition of some citizens and traditional energy companies when they act towards a greener and more participative energy transition.

Matters of energy justice and fair energy transitions are not mentioned by the members of UR BEROA as motivating factors for their engagement in collective energy actions, whereas policymakers see increasing the participation of citizens in the energy transition as a way of fighting energy poverty. This discrepancy may be caused by a lack of awareness or knowledge on the measures that can be taken at energy communities' level for fighting energy poverty or decreasing social inequalities.

These asymmetries on expectations and influences among actors are confirmed by the differences on perceived and preferred relationships among them. The current situation shows that relationships among the three actors are not based on equality and collaboration, but rather top-down authoritative approaches. However, when asked about the preferred relationships, most of the actors' state that more collaborative and balanced relationships are convenient to increase energy citizenship. In this case, the main discrepancy is shown by policymakers that do not consider that a more collaborative relation with citizens is needed.

With these insights from the case study, several policy measures and tools could be utilised to increase energy citizenship. First, a clearer leadership role of policymakers is needed, with not only financial support to energy communities, but with other support instruments, and with a more explicit prioritisation of collective energy initiatives.

Second, it is important to increase the awareness and knowledge of society on the relevance of renewable energies in the energy transition, emphasising on the role of energy communities as a means of gaining local ownership and social acceptance of large RES projects and installations. Moreover, the role of energy communities in decreasing energy poverty and contributing to a fairer energy transition should be highlighted. Finally, collaboration among the actors involved should be improved to foster more balanced power-relations among them. It is of foremost importance to increase collaboration and trust among citizens and policymakers to reach the objective of enhancing energy citizenship.

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## Annex 1: Anonymised list of interviewees

Interview No.	Type of Actor	Date of interview	Interviewer	Reporter
1	Member of UR BEROA	16/06/2022	Lucía Polo	Izaskun Jimenez
2	Supplier	20/06/2022	Izaskun Jimenez	Hanna Kuittinen
3	Member of UR BEROA	20/06/2022	Izaskun Jimenez	Hanna Kuittinen
4	Policy maker	21/06/2022	Lucía Polo	Izaskun Jimenez
5	Member of UR BEROA	22/06/2022	Izaskun Jimenez	Hanna Kuittinen
6	Policy maker	24/06/2022	Izaskun Jimenez	Lucía Polo
7	Member of UR BEROA	27/06/2022	Izaskun Jimenez	Hanna Kuittinen
8	Supplier	27/06/2022	Lucía Polo	Izaskun Jimenez
9	Policy maker	28/06/2022	Izaskun Jimenez	Hanna Kuittinen
10	Member of UR BEROA	28/06/2022	Izaskun Jimenez	Hanna Kuittinen
11	Member of UR BEROA	30/06/2022	Lucía Polo	Hanna Kuittinen
12	Member of UR BEROA	30/06/2022	Izaskun Jimenez	Hanna Kuittinen
13	Member of UR BEROA	01/07/2022	Lucía Polo	Hanna Kuittinen
14	Member of UR BEROA	06/07/2022	Lucía Polo	Izaskun Jimenez

## Annex 2: Guide for interviews

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Before beginning with questions, remind the interviewee of the purpose of the interview:

*Explain* what is GRETA and its relevance

*Stress that this is not an evaluation of their behaviour or engagement* – Our study is not an assessment of individual firms, individual government agencies or citizens – the purpose is to identify and assess the adequacy of current policy instruments promoting innovation in cleaner energy technologies by looking at the barriers and drivers that potential innovators face.

*Stress that objective* of the exercise is to assist National government and the EU Commission in ensuring a good design of future policies for cleaner energy practices by taking into account a broad range of stakeholders ensuring win-win situations.

*Stress* that we most want to understand which structural aspects are the most important influencing the diffusion of clean energy technologies (questions here... Should this be worded directly addressing the concept of Energy citizenship? I doubt it so we used more the language of supporting, adopting or using cleaner energy technology options).

### PART A- GENERAL INFORMATION

Name of the interviewee

Gender

Age

Then for policymaker and businesses:

Professional activity

Company/organisation:

Position in company/organisation:

#### 1. Questionnaire for Members of UR BEROA.

Member of UR BEROA behaviour:

To join with my neighbours to produce energy for joint self-consumption in the next two years and in five years.

Likely individual goal: comfort, economic savings, community building.

Part B – Past behaviour and planned actions

- 1) Have you joined with your neighbours to produce energy for joint self-consumption in the recent past? Are you doing it now?

- 2) (If previous question is YES, this question should be oriented to know if they still do and if they plan to keep doing it?) Have you plans to join with your neighbours to produce energy for joint self-consumption in the near future (in one or two years)?
- 3) In the long term? (In five years)

#### Part C – Potential Outcomes

##### Outcomes associated with engaging in GRETA

- 1) What do you see as the advantages/gains/benefits of joining with your neighbours to produce energy for joint self-consumption in the next year, in two years, in five years?
- 2) What do you see as the disadvantages/drawbacks of joining with your neighbours to produce energy for joint self-consumption in the next year, in two years, in five years?
- 3) Is there anything else, either positive or negative, that you associate with the joining with your neighbours to produce energy for joint self-consumption in the next year, in two years for you, in five years?

##### Outcomes associated with not engaging in GRETA

- 1) What do you see as the advantages/gains/benefits of not joining with your neighbours to produce energy for joint self-consumption in the next year, in two years, in five years?
- 2) What do you see as the disadvantages/drawbacks of not joining with your neighbours to produce energy for joint self-consumption in the next year, in two years, in five years??
- 3) Is there anything else, either positive or negative, that you associate with the not joining with your neighbours to produce energy for joint self-consumption in the next year, in two years for you, in five years?

#### Part D – Norms

- 1) Are there any people, organisations, or institutions who you think want/push you to join with your neighbours to produce energy for joint self-consumption?
- 2) Are there any people or institutions/organisations that you think oppose that you join with your neighbours to produce energy for joint self-consumption?
- 3) Does anybody else come to mind when you think about you joining with your neighbours to produce energy for joint self-consumption?

#### Part E – Agency to perform

- 1) What kind of skills or abilities do you think you need to adopt (or develop) joining with your neighbours to produce energy for joint self-consumption?
- 2) What do need to know to join with your neighbours to produce energy for joint self-consumption?

- 3) What kind of information do you think you need to join with your neighbours to produce energy for joint self-consumption?
- 4) What additional resources in terms of time/money do you think you need in order to join with your neighbours to produce energy for joint self-consumption?
- 5) Are there any people or institutions from which you need help to join with your neighbours to produce energy for joint self-consumption?
- 6) Are there any particular circumstances/opportunities you think you rely on for joining with your neighbours to produce energy for joint self-consumption?
- 7) Are there any constraints you think are stopping you from joining with your neighbours to produce energy for joint self-consumption?
- 8) Past experience with joining with your neighbours to produce energy for joint self-consumption
- 9) Any other relevant experience that affects the decision to join with your neighbours to produce energy for joint self-consumption

#### Part F - Relational models

- 1) What type of the relation with government and regulators regarding joining with your neighbours to produce energy for joint self-consumption is currently in place?
- 2) What type of relation would you prefer that is more in line with supporting joining with your neighbours to produce energy for joint self-consumption?
- 3) What type of the relation with companies regarding joining with your neighbours to produce energy for joint self-consumption is currently in place?
- 4) What type of relation would you prefer that is more in line with supporting joining with your neighbours to produce energy for joint self-consumption?

## 2. Questionnaire for Supplier 1.

### Supplier 1 behaviour:

To implement clean energy sources (PV and hydrogen) in our energy production system this year, in the next two years and in five years

Likely individual goal: ensure cooperative's economic and social sustainability, services optimization, comply with environmental goals

### Part B – Past behaviour and planned actions

- 1) Have you implemented clean energy sources (PV and hydrogen) in your energy production system in the recent years?
- 2) Have you plans to implement clean energy sources (PV and hydrogen) in our energy production system this year, in the next two years?
- 3) In the long term (in five or ten years)?

### Part C – Potential outcomes

#### Outcomes associated with engaging in GRETA

- 1) What do you see as the advantages/gains/benefits of implementing clean energy sources (PV and hydrogen) in your energy production system in the next year, in two years, in five years?
- 2) What do you see as the disadvantages/drawbacks of implementing clean energy sources (PV and hydrogen) in your energy production system in the next year, in two years, in five years?
- 3) Is there anything else, either positive or negative, that you associate with the of implementing clean energy sources (PV and hydrogen) in your energy production system in the next year, in two years for you, in five years?

#### Outcomes associated with not engaging in GRETA

- 1) What do you see as the advantages/gains/benefits of not of implementing clean energy sources (PV and hydrogen) in your energy production system in the next year, in two years, in five years?
- 2) What do you see as the disadvantages/drawbacks of not of implementing clean energy sources (PV and hydrogen) in your energy production system in the next year, in two years, in five years??
- 3) Is there anything else, either positive or negative, that you associate with not implementing clean energy sources (PV and hydrogen) in your energy production system in the next year, in two years for you, in five years?

## Part D – Norms

- 1) What kind of skills or abilities do you think your organisation needs to implement clean energy sources (PV and hydrogen) in your energy production system?
- 2) What does your organisation need to know to implement clean energy sources (PV and hydrogen) in your energy production system?
- 3) What experience do you think your organisation needs to implement clean energy sources (PV and hydrogen) in your energy production system?
- 4) What kind of information do you think your organisation needs to implement clean energy sources (PV and hydrogen) in your energy production system?
- 5) What additional resources in terms of time/money do you think your organisation needs in order to implement clean energy sources (PV and hydrogen) in your energy production system?
- 6) Are there any people or institutions from which your organisation needs help to implement clean energy sources (PV and hydrogen) in your energy production system?
- 7) Are there any particular circumstances/opportunities you think your organisation relies on for implementing clean energy sources (PV and hydrogen) in your energy production system?
- 8) Are there any constraints you think are stopping your organisation from implementing clean energy sources (PV and hydrogen) in your energy production system?
- 9) Past experience with: Policies supporting clean energy technologies: Any other relevant experience that affects the decision to engage in implementing clean energy sources (PV and hydrogen) in your energy production system?

## Part F - Relational models

- 1) What type of relation with government and regulators regarding implementing clean energy sources (PV and hydrogen) in your energy production system is currently in place?
- 2) What type of relation would you prefer that is more in line with supporting implementing clean energy sources (PV and hydrogen) in your energy production system?
- 3) What type of relation with citizens regarding implementing clean energy sources (PV and hydrogen) in your energy production system is currently in place?
- 4) What type of relation would you prefer that is more in line with supporting implementing clean energy sources (PV and hydrogen) in your energy production system?

Supplier 2 behaviour:

To provide technical/technological support to URBEROA regarding energy efficiency and adoption of RES. this year, in the next two years and in five years  
Likely individual goal: profitability, strong alliance, new markets

Part B – Past behaviour and planned actions

- 1) Have you provided technical/technological support to URBEROA regarding energy efficiency and adoption of RES in the recent years?
- 2) Have you plans to provide technical/technological support to URBEROA regarding energy efficiency and adoption of RES this year, in the next two years?
- 3) In the long term (in five or ten years)?

Part C – Potential outcomes

Outcomes associated with engaging in GRETA

- 1) What do you see as the advantages/gains/ providing technical/technological support to URBEROA regarding energy efficiency and adoption of RES in the next year, in two years, in five years?
- 2) What do you see as the disadvantages/drawbacks of providing technical/technological support to URBEROA regarding energy efficiency and adoption of RES in the next year, in two years, in five years?
- 3) Is there anything else, either positive or negative, that you associate with the providing technical/technological support to URBEROA regarding energy efficiency and adoption of RES in the next year, in two years for you, in five years?

Outcomes associated with not engaging in GRETA

- 1) What do you see as the advantages/gains/benefits of not providing technical/technological support to URBEROA regarding energy efficiency and adoption of RES in the next year, in two years, in five years?
- 2) What do you see as the disadvantages/drawbacks of not providing technical/technological support to URBEROA regarding energy efficiency and adoption of RES in the next year, in two years, in five years??
- 3) Is there anything else, either positive or negative, that you associate with not providing technical/technological support to URBEROA regarding energy efficiency and adoption of RES in the next year, in two years for you, in five years?

Part D – Norms

- 1) What kind of skills or abilities do you think your organisation needs to provide technical/technological support to URBEROA regarding energy efficiency and adoption of RES?
- 2) What does your organisation need to know to provide technical/technological support to URBEROA regarding energy efficiency and adoption of RES?
- 3) What experience do you think your organisation needs to provide technical/technological support to URBEROA regarding energy efficiency and adoption of RES?
- 4) What kind of information do you think your organisation needs to provide technical/technological support to URBEROA regarding energy efficiency and adoption of RES?
- 5) What additional resources in terms of time/money do you think your organisation needs in order to provide technical/technological support to URBEROA regarding energy efficiency and adoption of RES?
- 6) Are there any people or institutions from which your organisation needs help to provide technical/technological support to URBEROA regarding energy efficiency and adoption of RES?
- 7) Are there any particular circumstances/opportunities you think your organisation relies on for providing technical/technological support to URBEROA regarding energy efficiency and adoption of RES?
- 8) Are there any constraints you think are stopping your organisation from providing technical/technological support to URBEROA regarding energy efficiency and adoption of RES?
- 9) Past experience with: Policies supporting clean energy technologies: Any other relevant experience that affects the decision to engage in providing technical/technological support to URBEROA regarding energy efficiency and adoption of RES?

#### Part F - Relational models

- 1) What type of relation with government and regulators regarding the provision of technical/technological support to URBEROA regarding energy efficiency and adoption of RES is currently in place?
- 2) What type of relation would you prefer that is more in line with supporting the provision of technical/technological support to URBEROA regarding energy efficiency and adoption of RES??
- 3) What type of the relation with citizens regarding the provision of technical/technological support to URBEROA regarding energy efficiency and adoption of RES is currently in place?
- 4) What type of relation would you prefer that is more in line with supporting regarding the provision of technical/technological support to URBEROA regarding energy efficiency and adoption of RES?



Policymaker 1 behaviour:

To promote district heating initiatives in San Sebastian this year, in the next two years and in five years.

Likely individual goal: re-election, comply with political agenda, recognition of the environmental and energy performance of San Sebastian.

Part B – Past behaviour and planned actions

- 1) Have you promoted district heating initiatives in San Sebastian in the recent years?
- 2) Have you plans to promote district heating initiatives in San Sebastian this year, in the next two years?
- 3) In the long term (in five or ten years)?

Part C – Potential outcomes

Outcomes associated with engaging in GRETA

- 1) What do you see as the advantages/gains/benefits of promoting district heating initiatives in San Sebastian in the next year, in two years, in five years?
- 2) What do you see as the disadvantages/drawbacks of promoting district heating initiatives in San Sebastian in the next year, in two years, in five years?
- 3) Is there anything else, either positive or negative, that you associate with the promoting district heating initiatives in San Sebastian in the next year, in two years for you, in five years?

Outcomes associated with not engaging in GRETA

- 1) What do you see as the advantages/gains/benefits of not promoting district heating initiatives in San Sebastian in the next year, in two years, in five years?
- 2) What do you see as the disadvantages/drawbacks of not promoting district heating initiatives in San Sebastian in the next year, in two years, in five years??
- 3) Is there anything else, either positive or negative, that you associate with the not promoting district heating initiatives in San Sebastian in the next year, in two years for you, in five years?

Part D – Norms

- 1) What kind of skills or abilities do you think your organisation needs to promote district heating initiatives in San Sebastian?
- 2) What does your organisation need to know to promote district heating initiatives in San Sebastian?
- 3) What experience do you think your organisation needs to promote district heating initiatives in San Sebastian?

- 4) What kind of information do you think your organisation needs to promote district heating initiatives in San Sebastian?
- 5) What additional resources in terms of time/money do you think your organisation needs in order to promote district heating initiatives in San Sebastian?
- 6) Are there any people or institutions from which your organisation needs help to promote district heating initiatives in San Sebastian?
- 7) Are there any particular circumstances/opportunities you think your organisation relies on for promoting district heating initiatives in San Sebastian?
- 8) Are there any constraints you think are stopping your organisation from promoting district heating initiatives in San Sebastian?
- 9) Past experience with: Policies supporting clean energy technologies: Any other relevant experience that affects the decision to engage in promoting district heating initiatives in San Sebastian?

#### Part F - Relational models

- 1) What type of the relation with citizens regarding promoting district heating initiatives in San Sebastian is currently in place?
- 2) What type of relation would you prefer that is more in line with supporting the promotion district heating initiatives in San Sebastian?
- 3) What type of the relation with companies do you have regarding the promotion of district heating initiatives in San is currently in place?
- 4) What type of relation would you prefer that is more in line with supporting the promotion district heating initiatives in San Sebastian you prefer?

#### Part G- Policy framework

- 1) Which policy frameworks/ policies regarding the promotion district heating initiatives in San Sebastian do you know of?
- 2) What are the most commonly used policy frameworks/ policies regarding the promotion district heating initiatives in San Sebastian?
- 3) In your opinion, what are the most important policy frameworks/ policies in promotion district heating initiatives in San Sebastian?

Policymaker 2 behaviour:

To provide financial support to consumers for RES investments in buildings in the Basque Country this year, in the next two years and in five years.

Likely individual goal: comply with political agenda

Part B – Past behaviour and planned actions

- 1) Have you provided financial support to consumers for RES investments in buildings in the Basque Country in the recent years?
- 2) Have you plans to provide financial support to consumers for RES investments in buildings in the Basque Country this year, in the next two years?
- 3) In the long term (in five or ten years)?

Part C – Potential outcomes

Outcomes associated with engaging in GRETA

- 1) What do you see as the advantages/gains/benefits of providing financial support to consumers for RES investments in buildings in the Basque Country in the next year, in two years, in five years?
- 2) What do you see as the disadvantages/drawbacks of providing financial support to consumers for RES investments in buildings in the Basque Country in the next year, in two years, in five years?
- 3) Is there anything else, either positive or negative, that you associate with the providing financial support to consumers for RES investments in buildings in the Basque Country in the next year, in two years for you, in five years?

Outcomes associated with not engaging in GRETA

- 1) What do you see as the advantages/gains/benefits of not providing financial support to consumers for RES investments in buildings in the Basque Country in the next year, in two years, in five years?
- 2) What do you see as the disadvantages/drawbacks of not providing financial support to consumers for RES investments in buildings in the Basque Country in the next year, in two years, in five years??
- 3) Is there anything else, either positive or negative, that you associate with not providing financial support to consumers for RES investments in buildings in the Basque Country in the next year, in two years for you, in five years?

Part D – Norms

- 1) What kind of skills or abilities do you think your organisation needs to provide financial support to consumers for RES investments in buildings in the Basque Country?

- 2) What does your organisation need to know to provide financial support to consumers for RES investments in buildings in the Basque Country?
- 3) What experience do you think your organisation needs to provide financial support to consumers for RES investments in buildings in the Basque Country?
- 4) What kind of information do you think your organisation needs to provide financial support to consumers for RES investments in buildings in the Basque Country?
- 5) What additional resources in terms of time/money do you think your organisation needs in order to provide financial support to consumers for RES investments in buildings in the Basque Country?
- 6) Are there any people or institutions from which your organisation needs help provide financial support to consumers for RES investments in buildings in the Basque Country?
- 7) Are there any particular circumstances/opportunities you think your organisation relies on for providing financial support to consumers for RES investments in buildings in the Basque Country?
- 8) Are there any constraints you think are stopping your organisation from providing financial support to consumers for RES investments in buildings in the Basque Country?
- 9) Past experience with: Policies supporting clean energy technologies. Any other relevant experience that affects the decision to engage in providing financial support to consumers for RES investments in buildings in the Basque Country?

#### Part F - Relational models

- 1) What type of the relation with citizens regarding providing financial support to consumers for RES investments in buildings in the Basque Country is currently in place?
- 2) What type of relation would you prefer that is more in line with supporting the provision of financial support to consumers for RES investments in buildings in the Basque Country?
- 3) What type of the relation with companies regarding the provision of financial support to consumers for RES investments in buildings in the Basque Country is currently in place?  
CS, AR, EM, MP (Read one liner to define each relational model)
- 4) What type of relation would you prefer that is more in line with supporting the provision of financial support to consumers for RES investments in buildings in the Basque Country?

#### Part G- Policy framework

- 1) Which policy frameworks/ policies regarding the provision of financial support to consumers for RES investments in buildings in the Basque Country do you know of?
- 2) What are the most commonly used policy frameworks/ policies regarding the provision of financial support to consumers for RES investments in buildings in the Basque Country?
- 3) In your opinion, what are the most important policy frameworks/ policies in provision of financial support to consumers for RES investments in buildings in the Basque Country?

Policymaker 3 behaviour:

To establish mechanisms to support the active participation of citizens in the energy transition this year, then two and five years.

Likely individual goal/ professional motivation: Compliance with political agenda, reduce CO2 emissions, re-election.

Part B – Past behaviour and planned actions

- 1) Have you established mechanisms to support the active participation of citizens in the energy transition this year, then two and five years?
- 2) Have you plans to establish mechanisms to support the active participation of citizens in the energy transition this year, in the next two years?
- 3) In the long term (in five or ten years)?

Part C – Potential outcomes

Outcomes associated with engaging in GRETA

- 1) What do you see as the advantages/gains/benefits of establishing mechanisms to support the active participation of citizens in the energy transition in the next year, in two years, in five years?
- 2) What do you see as the disadvantages/drawbacks of establishing mechanisms to support the active participation of citizens in the energy transition in the next year, in two years, in five years?
- 3) Is there anything else, either positive or negative, that you associate with the establishment of mechanisms to support the active participation of citizens in the energy transition in the next year, in two years for you, in five years?

Outcomes associated with not engaging in GRETA

- 1) What do you see as the advantages/gains/benefits of not establishing mechanisms to support the active participation of citizens in the energy transition in the next year, in two years, in five years?
- 2) What do you see as the disadvantages/drawbacks of not establishing mechanisms to support the active participation of citizens in the energy transition in the next year, in two years, in five years??
- 3) Is there anything else, either positive or negative, that you associate with not establishing mechanisms to support the active participation of citizens in the energy transition in the next year, in two years for you, in five years?

Part D – Norms

- 1) What kind of skills or abilities do you think your organisation needs to establish mechanisms to support the active participation of citizens in the energy transition?

- 2) What does your organisation need to know to establish mechanisms to support the active participation of citizens in the energy transition?
- 3) What experience do you think your organisation needs to establish mechanisms to support the active participation of citizens in the energy transition?
- 4) What kind of information do you think your organisation needs to establish mechanisms to support the active participation of citizens in the energy transition?
- 5) What additional resources in terms of time/money do you think your organisation needs in order to establish mechanisms to support the active participation of citizens in the energy transition?
- 6) Are there any people or institutions from which your organisation needs help to establish mechanisms to support the active participation of citizens in the energy transition?
- 7) Are there any particular circumstances/opportunities you think your organisation relies on for establishing mechanisms to support the active participation of citizens in the energy transition?
- 8) Are there any constraints you think are stopping your organisation from establishing mechanisms to support the active participation of citizens in the energy transition?
- 9) Past experience with: Policies supporting clean energy technologies. Any other relevant experience that affects the decision to establish mechanisms to support the active participation of citizens in the energy transition?

#### Part F - Relational models

- 1) What type of the relation with citizens regarding establishing mechanisms to support the active participation of citizens in the energy transition is currently in place?
- 2) What type of relation would you prefer that is more in line with establishing mechanisms to support the active participation of citizens in the energy transition?
- 3) What type of the relation with companies regarding the establishment of mechanisms to support the active participation of citizens in the energy transition is currently in place? CS, AR, EM, MP (Read one liner to define each relational model)
- 4) What type of relation would you prefer that is more in line with establishing mechanisms to support the active participation of citizens in the energy transition?

#### Part G- Policy framework

- 1) Which policy frameworks/ policies regarding the establishment of mechanisms to support the active participation of citizens in the energy transition do you know of?
- 2) What are the most commonly used policy frameworks/ policies the establishment of mechanisms to support the active participation of citizens in the energy transition?
- 3) In your opinion, what are the most important policy frameworks/ policies in the establish mechanisms to support the active participation of citizens in the energy transition?