Energy Citizenship country profiles

Spain

This report is part of a series of country profile reports that can be found at

https://www.energyprospects.eu/

For further information about the mapping of energy citizenship and the series of country profile reports, please contact GreenDependent Institute at info@greendependent.org.

For further information about the cases in Spain, please contact University of A Coruña at adina.dumitru@udc.es or luisa.losada@udc.es

grÜndependent Institute

UNIVERSIDADE DA CORUÑA

Table of Contents

grÜndependent Institute

UNIVERSIDADE DA CORUÑA

Introduction and notes on methodology

This report was prepared as part of the 'mapping of energy citizenship in Europe' task within the EnergyPROSPECTS project.

EnergyPROSPECTS (PROactive Strategies and Policies for Energy Citizenship Transformation) works with a critical understanding of energy citizenship that is grounded in state-of-the-art social sciences and humanities (SSH) insights. The project aims to develop a broad understanding of energy citizenship as a policy concept, a sociotechnical imaginary, and a knowing-of-governance – i.e., a social construction of desirable/normal civic agency in future energy systems. The project set out to identify and examine a range of cross-cutting issues in energy citizenship, which informed the iterative typology development and criteria for case selection. Drawing on pre-existing databases and the identification of new cases, the selection of at least 500 initiatives, as well as mapping and typology refinement exercises that demonstrate the depth/breadth of the energy citizenship concept in theory and practice is undertaken.

As part of the energy citizenship mapping task, a methodology was developed for pursuing the overall project aim of identifying the diversity of types and empirical manifestations of energy citizenship. The methodology was created to help answer the main research questions the EnergyPROSPECTS project team intends to answer through undertaking the mapping activity, which are as follows:

- Which forms of energy citizenship (henceforth referred to as ENCI) can be found in Europe today? How can we account for their diversity?
- Can we find the same forms of ENCI in the different regions/countries of Europe?
- In what contexts do different forms of ENCI emerge and develop?

In the current report we present the diversity of forms of energy citizenship identified in one of the project partner countries, Spain. Please note that **the objective was to identify the diversity of forms rather than to ensure representativity. Thus, this report does not aim to present all examples of energy citizenship in Spain, but rather to illustrate their diversity.**

For the definition of energy citizenship we turn to the conceptual framework of the EnergyPROSPECTS project presented in Pel et al., 2021:

Energy citizenship refers to forms of civic involvement that pertain to the development of a more sustainable and democratic energy system. Beyond its manifest forms, ENCI also comprises various latent forms: it is an ideal that can be lived up to and realised to varying degrees, according to different framework conditions and states of empowerment. (Pel et al., 2021:64)

Building on this definition of energy citizenship, **within the EnergyPROSPECTS project, instances of ENCI are understood as:**

1. constellations of actors (in a context) and how they
   ✓ enable/support citizens to become active private and/or public energy citizens;
   ✓ act as collective energy citizens by contributing to changes in the energy system

or

2. including individual energy citizens and how they realize their potential in a private, public or organisational setting.

As indicated by these definitions, and underlined by the agency dimension of the conceptual typology presented in Debourdeau et al. (2021) and summarised in Chapter 3 below, examples of ENCI can involve individuals or be realised in a multitude of collective forms. During the mapping of the ENCI landscape, focus was placed on identifying and collecting data about both types of cases.

Furthermore, as a huge variety of cases and initiatives are available that would fit these definitions, and mapping them all would go beyond the scope and resources of the current project, there was a need to further define what is considered a case within the research focus of the EnergyPROSPECTS project. Thus, the consortium decided at team workshops that the ENCI mapping activity would cover cases that:

- are **based in European countries** (including EU, EEA, and accession countries);

- are **currently active or were concluded no sooner than 2015** when the Energy Union Strategy was published.
  (This is because the focus in this research is not so much the historical forms of ENCI, but rather its current forms and manifestations, and the differences between them depending on the political, socioeconomic, etc. characteristics of their context);

- are **focused on direct energy production and/or consumption** (e.g., in households, organizations, etc.), **mobility** (having a direct connection to energy issues), or with a **more holistic overall focus on sustainable and just energy**.
  This means that in EnergyPROSPECTS a decision was made not to study initiatives that focus solely on nutrition, for example. However, if nutrition is part of an overall strategy for reducing energy use or carbon footprint that also focuses on direct energy use, mobility, etc., then the case could be included *(more details on the sampling strategy can be found in Vadovics et al., 2022)*.

grEEndependent
Institute

UNIVERSIDADE
DA CORUÑA

As Pel et al. (2021) indicate, we also recognise that even within the limitations specified for ENCI mapping, "enabling" and "supporting" citizens to become active private and/or public energy citizens can take many different forms. Similarly, energy citizenship itself can take many different forms. Furthermore, in reality many cases enable or support several different forms of energy citizenship in parallel, and often involve less as well as more active forms within the same case (e.g. citizens voluntarily organising carbon reduction groups as a more active form of citizenship, and citizens participating in these groups as a less active form).

As a result, it is expected that a very diverse collection of ENCI cases will emerge as an output of the mapping process. Indeed, it is important to note that although the term *energy citizenship* is often associated with energy communities or community energy projects, the objective in the EnergyPROSPECTS project is to uncover other forms of energy citizenship as well that include both individual and collective forms of citizenship.

As a result of the ENCI mapping activity, the consortium mapped 595 cases of ENCI in Europe. In addition to the country profile reports, we will present them in various forms, including an interactive database on the project website and various analytical reports that will all also be available on the website. For more about our ENCI mapping methodology and sampling strategy, please read Vadovics et al., 2022.

Report Disclaimer
In summary, when reading the following report, please bear in mind the following:
- The mapping of energy citizenship (ENCI) was not conducted to achieve a representative sample of cases in the country, but rather with the aim of providing an overview of the diversity of cases.
- The analysis is rather descriptive in nature, and further highlights diversity.
- The classification of the mapped cases into the various categories in our analysis does not involve a value judgement, but is rather an indication of diversity, as all types of cases are needed for the sustainable energy transformation to happen.
- Since providing details about the conceptual and methodological underpinning of the work that is presented here would go beyond the scope of this report, this is not attempted in this document, but details are available in other project documents – primarily, the following:
    1. methodology for ENCI mapping and data collection: Vadovics et al., 2022.
    2. conceptual framework: Pel et al., 2021
    3. conceptual typology: Debourdeau et al. (2021)

---

grÜndependent Institute

UNIVERSIDADE DA CORUÑA

Part 1: Basic information about energy citizenship in Spain: illustrating the diversity of energy citizenship
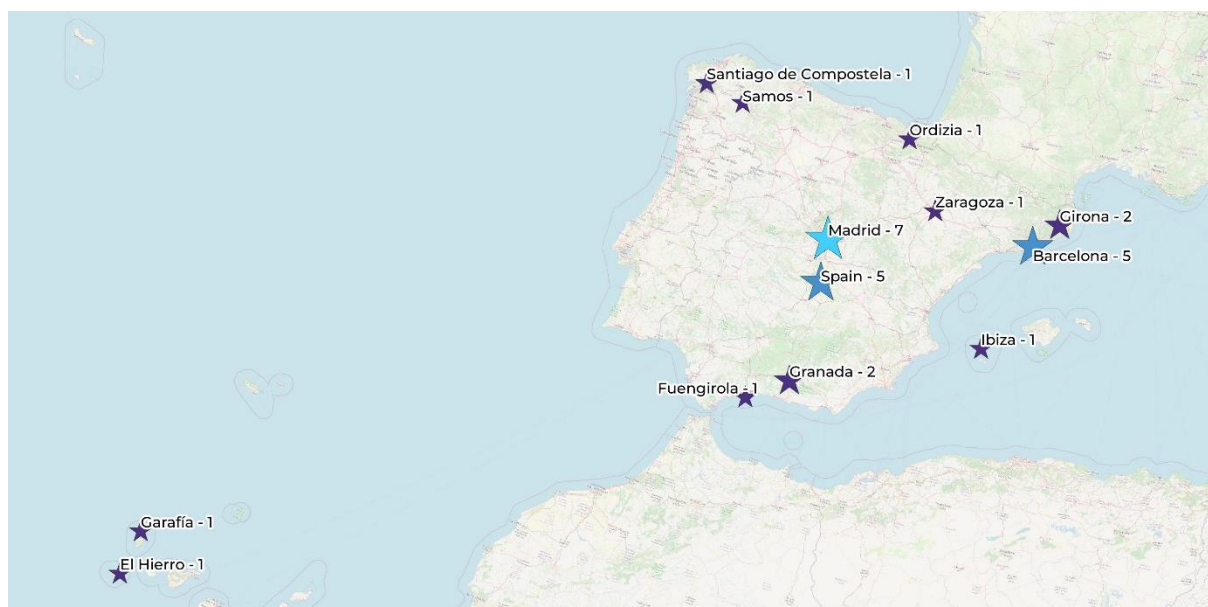
A total of **29 ENCI cases from Spain** have been entered into the database[1]. As stated in the Introduction, the objective of the mapping was not to achieve representativity, but rather to map the diversity of ENCI. Seven cases are related to Madrid (e.g. 100% Sustainable Madrid, Light at Home Oaxaca, Limitless sun, limitless energy…), capital of the country and headquarters of large ecological associations and organisations (e.g. Friends of the Earth Spain, whose initiatives such as Free the Sun, Solar Gardens, and Community Energy have been analysed).

The second highest number of cases (5) are from Barcelona, Spain's second largest city (after Madrid) and of cultural, financial, commercial, and touristic importance. Five cases are marked as general Spanish cases, meaning that they are not limited to a specific geographical location but are national-level cases that operate in various locations around the country (e.g. Green Homes [Hogares Verdes], No More Power Cuts Platform).

---

[1] A list of all the cases that are mapped, along with a brief description of them, is available in the Annex.

Almost **half of the cases (41.4%) focus on holistic, broader change** (e.g. Energy Bank Association [Associació Banc d'Energia]). In a slightly higher proportion (51.7%) are energy-specific initiatives (e.g., 8th Life EcoVillage Project, GoiEner), and none of them (0%) are focused mainly on mobility).

What is in the main focus of the case?

- direct energy production and/or consumption
- mobility
- holistic/focus on broader change
- none of the above

6.9%
41.4%
51.7%

n = 29
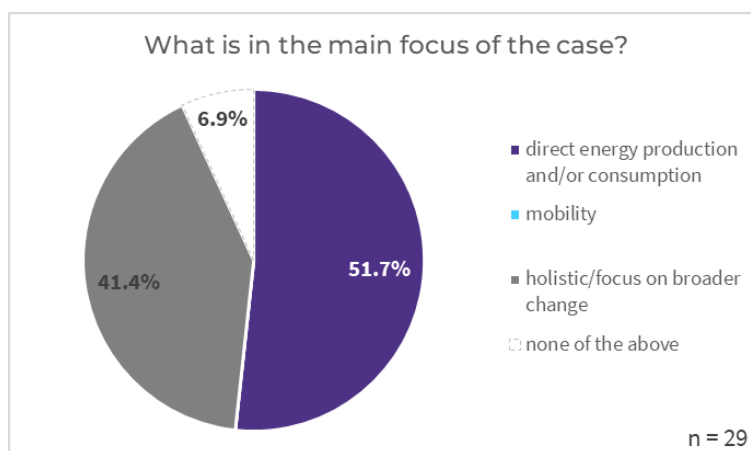
The **great majority (93.1%)** of Spanish cases in the database **are collective** (e.g. Energy with Consciousness, Som Energia) and less than one-tenth (6.9%) are individual cases (e.g. the Valley of Sensations Association [Asociación Valle de las Sensaciones], Green House).

Is it an individual or a collective ENCI case?

6.9%
- individual
- collective
93.1%

n = 29
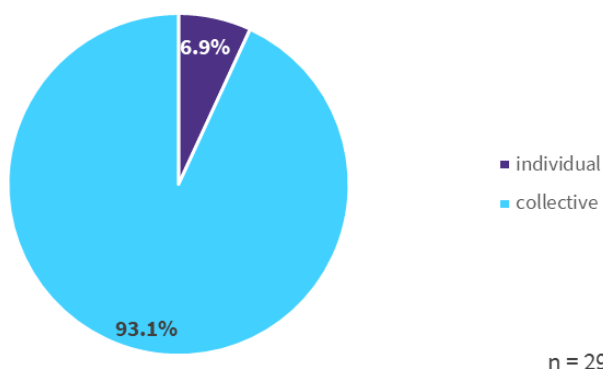
Please check if the following apply to the case.

82.8%

- It has a gender focus
- It focuses on issues related to disadvantaged groups
- None of these apply to the case

0.0%
17.2%

n = 29
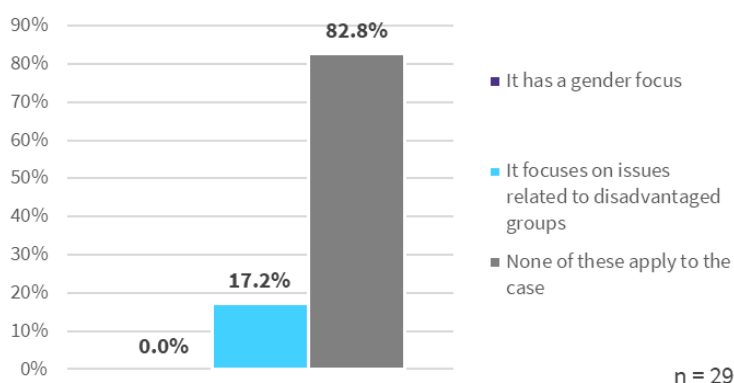
Nearly a **fifth of all cases (17.2%) focus on issues related to disadvantaged groups,** like those involving energy poverty, minorities, etc. (e.g. Light at Home Oaxaca, Noctisolar Ecolight), **but a specific gender focus is less widespread, with no cases analysed on this issue.**

grÜndependent Institute

UNIVERSIDADE DA CORUÑA

Looking at the mapped cases, a **small proportion of the initiatives (13.8%) are based in urban areas** (e.g. 100% Sustainable Madrid, Granada in Transition), and in the same proportion (13.8%) are concentrated in suburban, semi-urban areas (e.g. Energy Bank Association [Associació Banc d'Energia], Ecotown The Flower of Life). More than one-sixth of the cases (24.1%) focus on rural areas (including remote communities, islands, etc.) (e.g. Couso's Project, Noctisolar Ecolight). The largest proportion, a third of the cases (34.5%), focus on several of the above areas (e.g. USmartConsumer, Solar Pools Campaign), while a very small proportion of the initiatives (3.4%) were not located, as they were virtual cases (e.g. 'TRIBE: TRaIning Behaviours towards Energy efficiency: Play it!).

More than a **third of all cases (37.9%) that were mapped are active only in Spain** (e.g. Limitless sun, limitless energy; GoiEner; SomEnergia), but almost half of the mapped cases (41.4%) are active not only in Spain, but in other countries as well (Evaluation of Energy Behavioural Change Programmes [BEHAVE], Light at Home Oaxaca), and only a quarter have (3.4%) operated in other countries in the past (EURONET 50/50). The top five partner countries for Spanish cases currently in the database are Austria (8 cases, e.g. TRIBE: TRaIning Behaviours towards Energy efficiency: Play it!); Germany (6 cases, e.g. Free the Sun and Community Energy [Friends of the Earth Spain]); France (6 cases, e.g. EOLPOP – Living from the air of the sky); Finland (6 cases, e.g. the Valley of Sensations Association [Asociación Valle de las Sensaciones]); and the United Kingdom (5 cases, e.g. USmartConsumer).
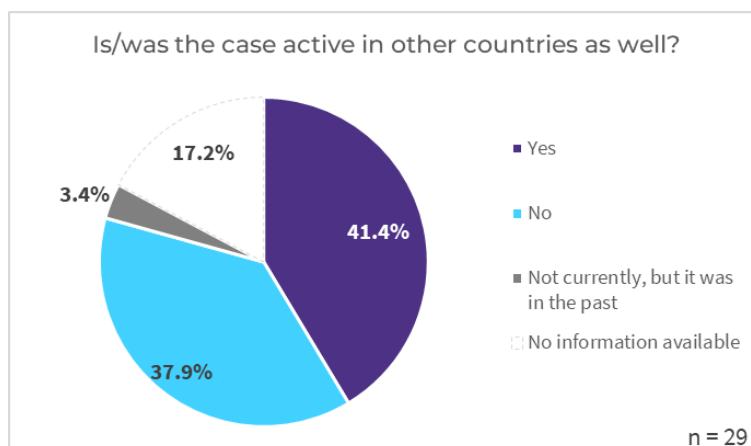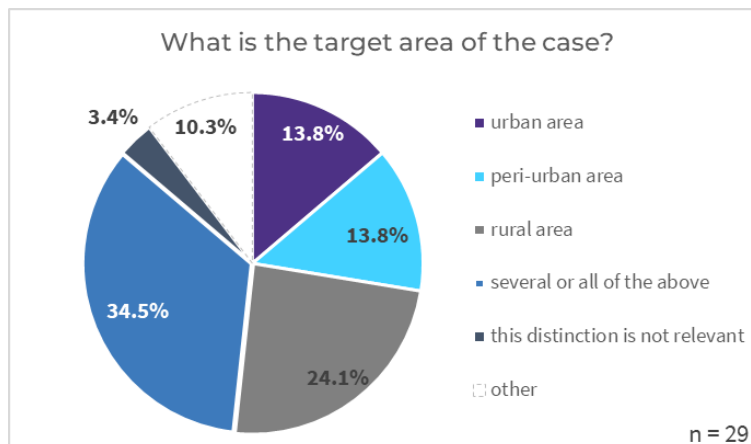
ENERGY
PROSPECTS

In Spain, **more than half of the cases (16) that were mapped started after 2010**, with nearly half starting between 2011 and 2015 (e.g. Not More Power Cuts Platform), and one-tenth (10.3%) between 2016 and 2020 (e.g. Energy Audits [Friends of the Earth Spain]). It highlights the existence of a considerable percentage (6.9%) of cases earlier than 1992 (e.g. Community Energy and Free the Sun [Friends of the Earth Spain].) and between 1996-2000 (e.g. Green House), as well as a smaller proportion between 2001-2005 (e.g. the Valley of Sensations Association [Asociación Valle de las Sensaciones]), and between 2006-2010 (e.g. Green Homes [Hogares Verdes]).
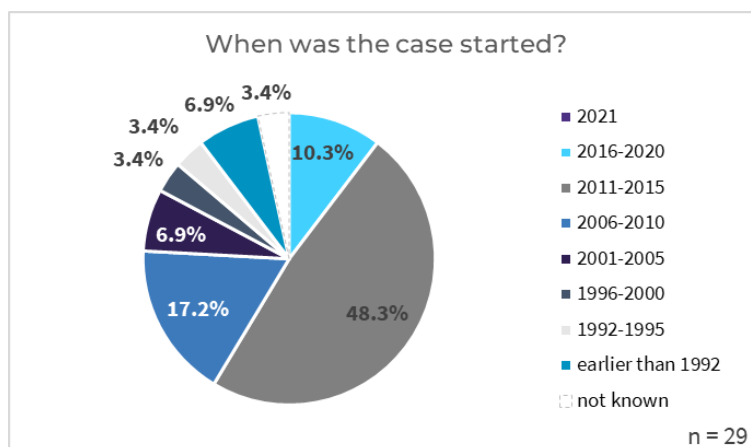
When was the case started?

- 2021
- 2016-2020
- 2011-2015
- 2006-2010
- 2001-2005
- 1996-2000
- 1992-1995
- earlier than 1992
- not known

3.4% / 6.9% / 3.4% / 3.4% / 10.3% / 6.9% / 17.2% / 48.3%

n = 29

The majority (72.4%) of the cases entered in the database **are still active**, and just over a quarter (27.6%) are no longer in operation. These are also worth mentioning as good examples because their experience is valuable and can provide a basis for other projects (e.g. USmartConsumer).

Is the case currently active?

27.6%

72.4%

- Yes
- No

n = 29

grīndependent
Institute

UNIVERSIDADE
DA CORUÑA
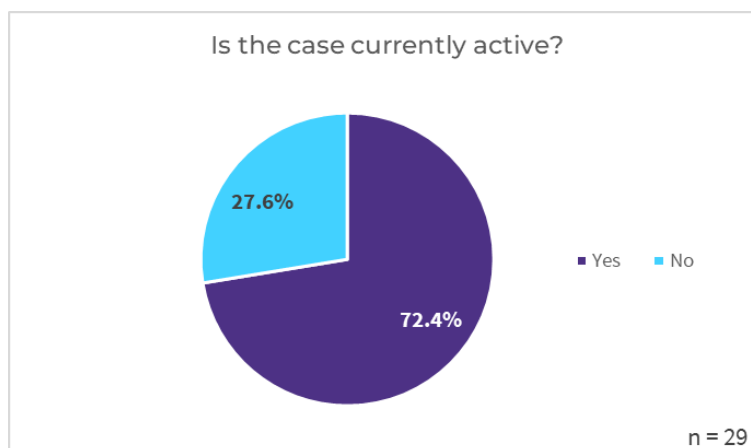
Part 2: Motivation, objectives, actors, operation

2.1 Motivation and objectives

*Q24. Why did the case start, what inspired its conception, **what motivated its start**?*

*Q25. What do the actors involved in the case want to achieve in the first place/most importantly? **What are/were the main objectives, aims?**[2]*

In Spain, the main motivation, which was a determining factor in **one-third of the cases (31%), was the contribution to the energy transition**. The second most important factor involved a desire for the production and/or use of renewable energy, which was the key motivator in just over a quarter of cases (27.6%). The third factor, present in nearly a quarter of the cases (24.1%), was the recognition of own responsibility.
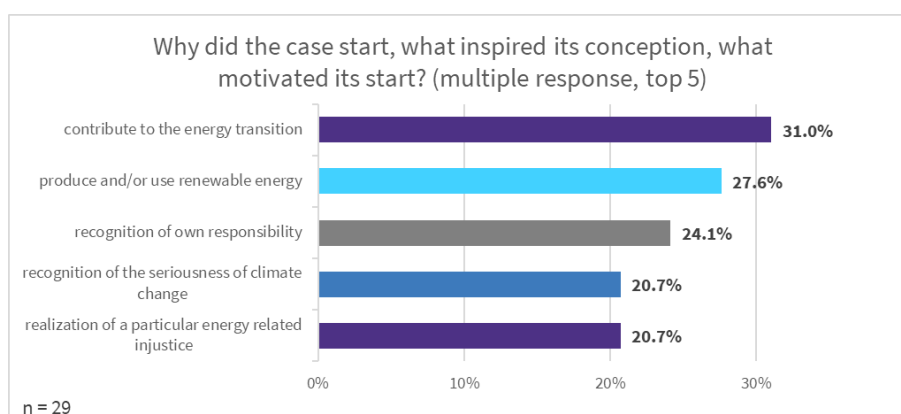
Although all the mapped cases had several sources of motivation for their conception and start, it is interesting to mention some examples of the main ones. The contribution to the energy transition was an important source of motivation for initiatives such as EOLPOP - Living from the air of the sky; 100% Sustainable Madrid; Solar Pools Campaigns; and Energy Audits [Friends of the Earth]; and also for project-based cases like that of Evaluation of Energy Behavioural Change Programmes [BEHAVE], TRIBE: TRaIning Behaviours towards Energy efficiency: Play it!, EURONET 50/50 and Smarter Together.

A desire for the production and/or use of renewable energy was influential in cases like Solar Gardens [Friends of the Earth], GoiEner, Som Energía and Solar Pool Campaign, as well as in the previously mentioned EOLPOP - Living from the air of the sky; Solar Pools Campaigns; and Energy Audits [Friends of the Earth], and EURONET 50/50. Recognition of own responsibility was an important factor in cases like Green House, USmartConsumer, EURONET 50/50, Noctisolar Ecolight, Ecotown The Flower of Life, Granada in Transition and 8th Life EcoVillage Project. For one-tenth of the cases (10.34%), 'Other' sources of motivation were (also) relevant. These cases focus on behaviour change programmes (e.g. Evaluation of Energy Behavioural Change Programmes [BEHAVE]).

Answers are more divided concerning what the initiators want to primarily achieve. **The greatest proportion seek to promote energy saving**, which is an important aim for almost two-fifths of the cases (37.9%). For almost a third (27.6%), energy justice, and for a slightly smaller proportion (24.1%), reducing carbon footprint, as well as increasing and/or achieving self-sufficiency.
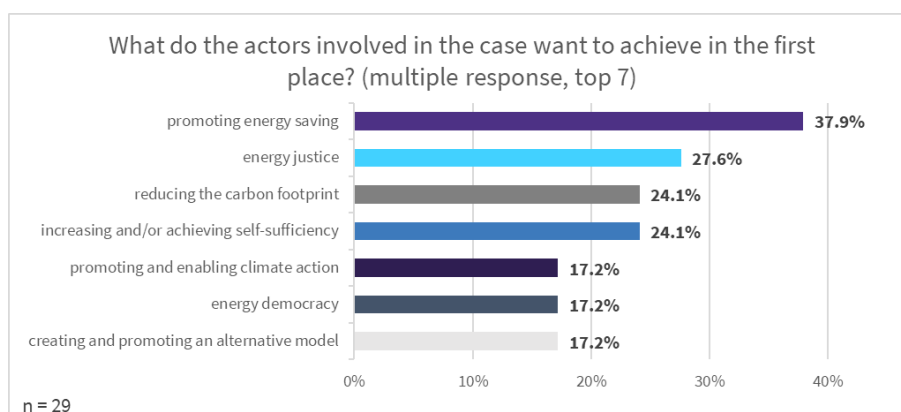
Promoting and enabling climate action was an important aim for cases such as 8th Life EcoVillage Project, Limitless sun, limitless energy, and Climate Elves, and Ecotown The Flower of Life. Energy justice was connected to initiatives like 100% Sustainable Madrid, and Community Energy, Solar Gardens and Energy Audits [Friends of the Earth Spain]. Reducing the carbon footprint was indicated as relevant for cases like Green Homes and Granada in Transition.

Regarding this question, the 'other' category was relevant in more than one-tenth of the cases (13.79%). Enhancing the performance of energy-related behaviour change programmes was a goal for some of them (e.g. Evaluation of Energy Behavioural Change Programmes [BEHAVE], TRIBE: TRaIning Behaviours towards Energy efficiency: Play it!) as with the earlier question, and specifically

on learning in action, inspiring and training others for transforming their practices to sustainable living (e.g. the Valley of Sensations Association [Asociación Valle de las Sensaciones]). Another one is focused on sustainable building (Noctisolar Ecolight: light to hope).

2.2 Actors initiating and involved in the ENCI cases

*Q31. Who or **which actors initiated** the case?*

*Q33. Who and/or **which actors are currently involved** in the case?*

In most Spanish cases, **the initiating actors were two or more individual, an informal group of individuals: in slightly more than a quarter of cases (27.6%)** they were identified as important actors (e.g. 100% Sustainable Madrid, La borda Housing cooperative in transfer of

Who or which actors initiated the case? (multiple response, top 6)

one or more NGO(s)	10.3%
one or more municipality	10.3%
an individual	10.3%
department, agency of public body of the EU	13.8%
one or more non-profit company	24.1%
two or more individuals	27.6%

n = 29
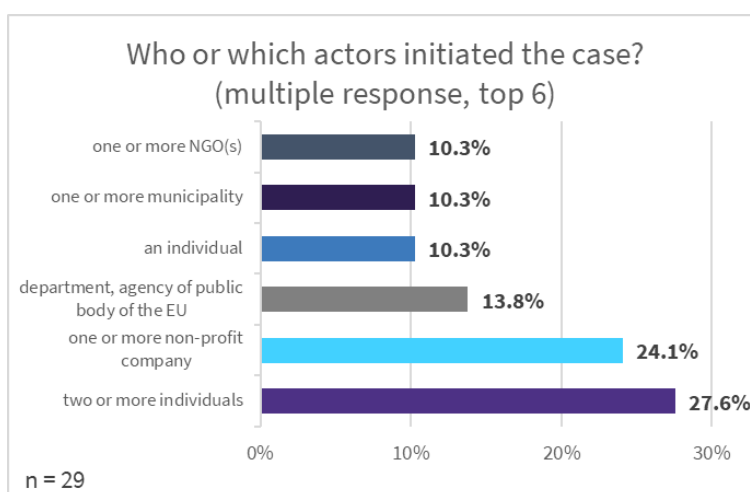
use [La Borda. Cooperativa d'habitatge en cessió d'ús]). Just below, and in nearly a quarter of cases (24.1%), one or more non-profit companies were initiators (e.g. Light at Home Oaxaca, Energy with consciousness), and in nearly one-seventh of cases (13.8%) a department, agency of public body of the EU was responsible (e.g. USmart Consumer, EURONET 50/50).

In the large majority of cases – **more than a quarter (34.5%)** – **NGOs were involved** in the implementation of cases (e.g. Energy Bank Association [Associació Banc d'Energia], EOLPOP – Living from the air of the sky). Also, significantly, almost one-fifth (17.2%) a group of individuals

Who and/or which actors are currently involved in the case? (multiple response, top 5)

individuals in a household setting	13.8%
one or more non-profit company	17.2%
one or more for-profit company	17.2%
a group of individuals	17.2%
NGO(s)	34.5%

n = 29
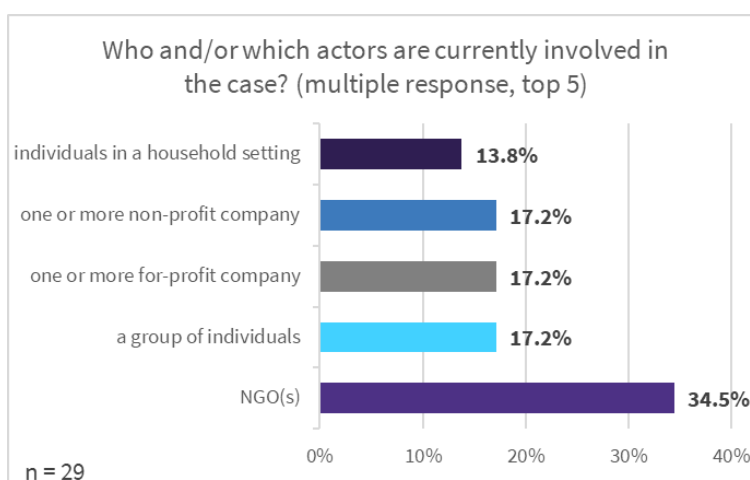
(incl. community group) were the important actors (e.g. the Valley of Sensations Association

[Asociación Valle de las Sensaciones], GoiEner), and in the same proportion one or more for-profit company (e.g. Evaluation of Energy Behavioural Change Programmes [BEHAVE]) and non-profit company (e.g. Noctisolar Ecolight: light to hope).

2.3 Scale of ENCI operations, networks

*Q35. At **which scale** does the case itself currently operate or involve actors?*

*Q36. What is the current **organisational form/structure** of the case?*

*Q39. Is/was the case **part of a network** of similar initiatives?*

The **operational level of Spanish cases is mixed**. Just over two-fifths of them (41.4%) operate at organizational level, a little more than one-fifth (20.7%) at municipal, as well as regional level, and a few percent less (17.2%) at multi-country level. Examples at an organizational level include cases like Energy Bank Association

At which scale does the case itself currently operate or involve actors? (multiple response)

other international	3.4%
European Union	6.9%
local	10.3%
national	13.8%
individual or household	13.8%
multi-country	17.2%
regional	20.7%
municipal	20.7%
organisational	41.4%

n = 29

[Associació Banc d'Energia] and No More Power Cuts Platform; at the municipal level are 100% Sustainable Madrid and EOLPOP – Living from the air of the sky, and at a regional level are GoiEner and Light at Home; and finally, examples at multi-country level are the initiatives from Friends of the Earth, such as Free the Sun, or Community Energy. A case can operate at several levels (such as Community Energy [Friends of the Earth]), which operate or involve actors at all three levels. It is important to note that the level of operation is not restricted by the case being an individual one, individuals, like Achim Burkand in the Valley of Sensations Association [Asociación Valle de las Sensaciones], are also often active at different levels.
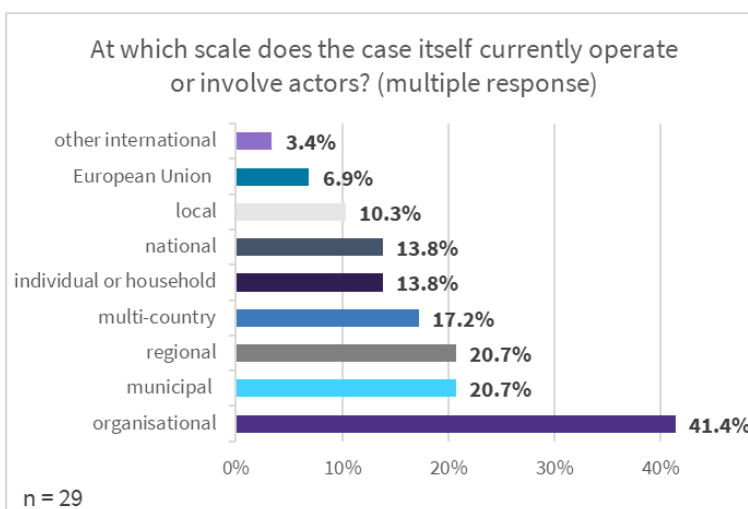
Most Spanish cases – more than a quarter of them (27.6%) – take the form of projects/programmes within an organisation. More than a tenth of the cases (13.8%) are cooperative cases, or NGOs. The fourth largest proportion (6.9%) either involve formally established networks,

What is the current organisational form/structure of the case? (top 6)

it is a partnership	6.9%
it is an informal group	6.9%
formally established network	6.9%
NGO	13.8%
cooperative	13.8%
it is a project/programme within an organisation	27.6%

n = 29

informal groups or partnerships. The project/programme type of case is represented, for example, by Evaluation of Energy Behavioural Change Programmes [BEHAVE] or USmart Consumer, while the cooperative cases are demonstrated by, for example, GoiEner or Som Energia, and the NGO are represented by cases such as 8th Life EcoVillage Project or Couso's Project. Other examples came from established networks (e.g. Friends of the Earth Spain), informal groups (e.g. Granada in Transition) and partnerships (e.g. La Borda. Housing cooperative in transfer of use [La Borda. Cooperativa d'habitatge en cessió d'ús]).
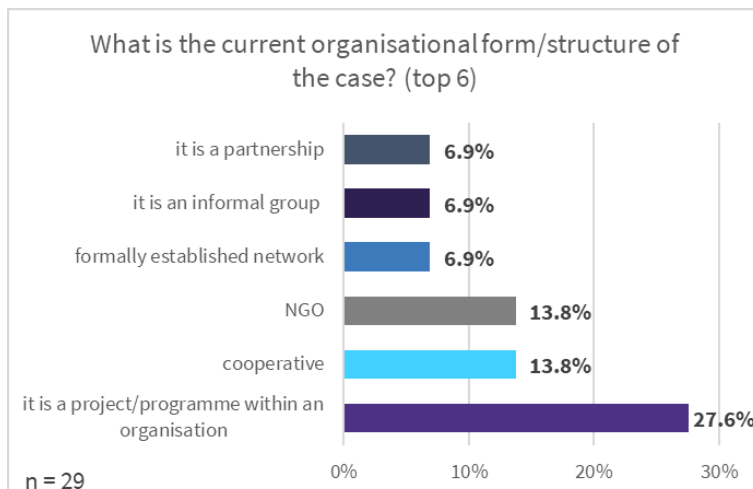
Almost half of the Spanish cases (44.8%) are part of any network of similar initiatives, such as RESCOOPs, Transition Network, Gaia Tasiri Association, Asociación Ibiza Ecologic, GreenHeart, Friends of the Earth Europe – and only a little more than

Is/was the case part of a network of similar initiatives?

- 44.8% Yes
- 34.5% No
- 20.7% No information available

n = 29

one-third of them (34.5%) are not. In almost a quarter of cases (20.7%), there was no information available to answer the respective question.

grün dependent Institut

UNIVERSIDADE DA CORUÑA
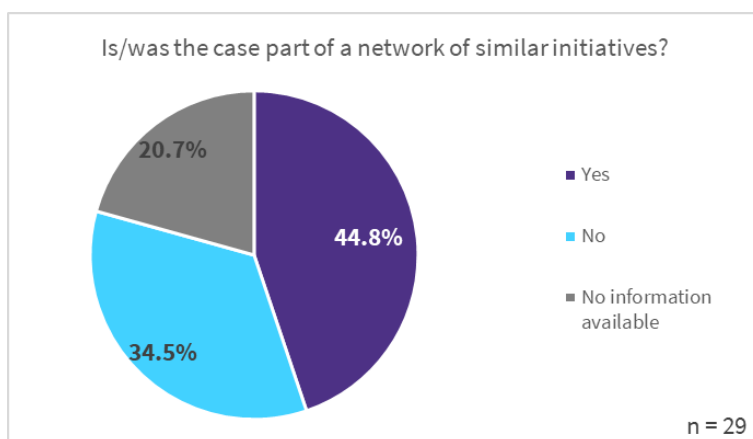
2.4 Sources of funding for ENCI operations

*Q46. What is the **primary / main source of funding** for this case?*

*Q47. Are/were there any **other sources of funding** for this case?*

In the largest proportion of Spanish cases – nearly a quarter of them (24.1%) – the primary source of funding is the European public funding (e.g. Solar Garden [Friends of the Earth Spain], USmart Consumer, Smarter Together). The second largest proportion of cases (17.2%) receive funding from an NGO (e.g. No More Power Cuts Platform, Energy Bank Association [Associació Banc d'Energia]), and the third largest proportion (13.5%) from other funding, mainly from the generation and marketing of energy (e.g. Som Energia, Ecotown The Flower of Life).

What is the primary / main source of funding for this case? (top 4)

- local public funding — 10.3%
- other — 13.8%
- funding from an NGO — 17.2%
- European public funding — 24.1%

n = 29

Regarding additional funding, in the largest proportions, comprising almost a quarter of cases (27.6%), there is/was no additional sources of funding (e.g. Light at Home Oaxaca or Energy with Consciousness). The category with the second highest number of cases (24.18%) involves those cases that receive national public funding (e.g. EOLPOP – Living from the air of the sky and Energy Bank Association [Associació Banc d'Energia]). These are followed by cases (20.7%) for which volunteers "donate" their work (e.g. Free the Sun and Community Energy [Friends of the Earth]). The fourth and the fifth places are covered by cases (17.2% each) where the sources of funding cannot be determined (e.g. 8th Life EcoVillage

Are/were there any other sources of funding for this case? (multiple response, top 5)

- membership fee — 17.2%
- cannot be determined — 17.2%
- donations — 20.7%
- national public funding — 24.1%
- there are/were no additional sources of funding — 27.6%

n = 29

grÜndependent Institute

UNIVERSIDADE DA CORUÑA
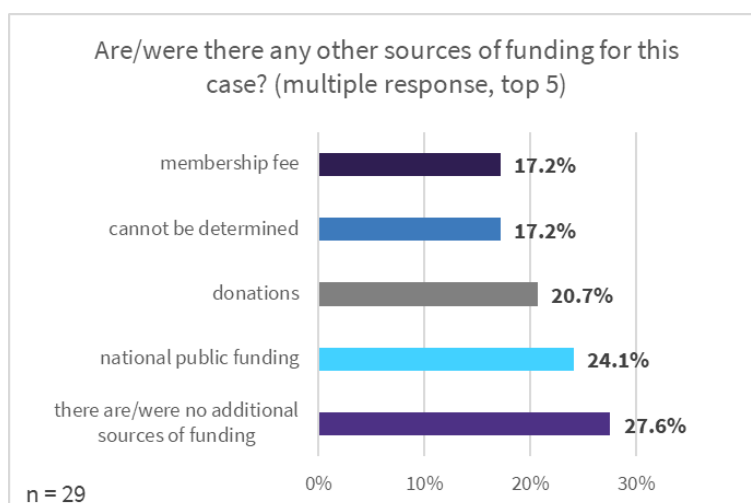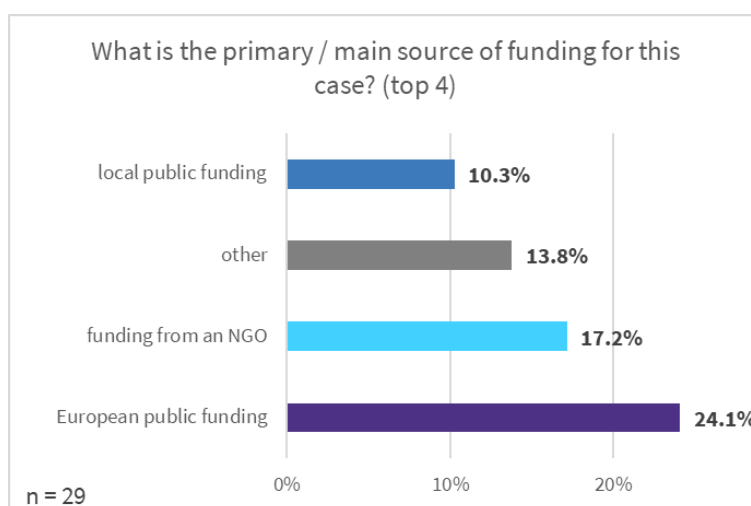
Project and Granada in Transition) and membership fee (e.g. La Borda. Housing Cooperative in transfer of use [La Borda. Cooperativa d'habitatge en cessió d'ús] and Som Energia).

Part 3: Placement of Spanish cases in the typology

Introduction to the EnergyPROSPECTS conceptual typology

In accordance with the conceptual framework elaborated in Pel et al., 2021, the EnergyPROSPECTS conceptual typology seeks to derive from the key conceptual distinctions analytical types and categories that account for the multiple forms of energy citizenship (ENCI). This is a qualitative descriptive typology that is mostly grounded on both a conceptual framework and consistent empirical research. Therefore, a dedicated methodology was elaborated to allow for typologisation that takes into account the specificity of the ENCI as a research object and the provisional absence of empirical input. The conceptual background of the EnergyPROSPECTS typology and its development process is summarized in Debourdeau et al. (2021).

As presented in Debourdeau et al. (2021), the EnergyPROSPECTS conceptual typology has two key dimensions: agency (individual vs. collective), and outcome orientation (reformative vs. transformative), each of which encompasses a variety of forms of ENCI.

The agency dimension encompasses three key distinctions highlighted within the conceptual framework, and primarily aims at addressing basic issues such as: *Who is doing ENCI? To whom can ENCI be ascribed? and Which kinds of configurations of actors can be considered relevant when searching for empirical cases?*

The outcome orientation dimension also encompasses two key distinctions highlighted within the conceptual framework and aims primarily at addressing questions that are complementary to those used for the agency dimension – i.e., *ENCI for what? What are the possible outcomes of ENCI that legitimise it as desirable? What kind of engagements and outcome orientations are to be considered as relevant for the empirical research?*

The matrix that can be constructed considering these two key dimensions is as follows, and allows for the distinction of ten conceptual types of ENCI:

AGENCY	INDIVIDUAL			COLLECTIVE	
OUTCOME ORIENTATION	PRIVATE (HOUSEHOLD)	ORGANISATIONALLY EMBEDDED (E.G., WORKPLACE)	PUBLIC	CITIZEN-BASED AND HYBRID	SOCIAL MOVEMENTS
REFORMATIVE	1. DO THEIR BIT (in the household) — Complying with the green energy transition	3. DO THEIR BIT (within organisations) — Energy citizenship within organisations	5. MAKE THEIR VOICE HEARD — Participating in societal energy discussions	7. DO THEIR SHARE — Joining green energy projects	9. DO THE JOB — Facilitating the energy transition through alignment activities
TRANSFORMATIVE	2. DO THEIR OWN (in the household) — The change-making energy citizen	4. DO IT THEIR WAY (within organisations) — The energy-related change maker in organisations	6. MAKE THEIR VOTE COUNT — Mobilising votes for energy transition	8. GO AHEAD — Building, expanding and linking citizen-based organisational forms	10. MAKE THEIR CLAIMS — Protesting against the current energy system

During the mapping activity, members of the consortium were asked to first identify the main type of mapped ENCI cases according to the typology, and then to identify all remaining types that it shapes, enables, or supports. However, given the conceptual nature of the typology, it was also acknowledged that the mapping – or in other words, the empirical validation of the typology – may uncover ENCI types the typology does not yet include. Furthermore, the iterative typology development process adopted in EnergyPROSPECTS also means that the conceptual typology will be further developed during subsequent stages of the research, as depicted in the figure below.

WP2	Conceptual typology developed	Testing & validation of conceptual typology in regional workshops	Consolidation of conceptual framework informed by typology
	M6 — M7 ···· M9 — M10 — M11 ···· M15 — M16 ···· M20 ···· M25		
WP3	Investigating energy citizenship in existing databases & identifying gaps	Systemic search for new cases · Selection of 500 cases for analysis	Application of WP2 typology to emperical cases · Testing, validation & refinement · Publication of final typology

In our analysis, described below, we present the ENCI cases as they were typologised using the conceptual typology presented above. Any further development of the typology will be reported on the project website.

grEEndependent Institute

UNIVERSIDADE DA CORUÑA

3.1 Main types of cases according to the typology

*Q75. Considering the main (or only) type of ENCI the case shapes/enables/supports, which **ideal type of ENCI** would you associate it with?*

Based on the evaluation of the Spanish research team of most of the cases that were mapped, **almost a quarter of them (24.1%) were classified as Type 1 according to the "Reformative – Private"** part of the ENCI typology. The category associated with the second largest number of cases was Type 8, "Transformative – Citizen based and Hybrid", representing a fifth of cases (20.7%), and the third largest was "Reformative – Citizen based and Hybrid", also representing nearly another fifth of cases (17.2%).

	Individual			Collective		Other
	Private	**Organizationally embedded**	**Public**	**Citizen-based and Hybrid**	**Social movements**	
Reformative	7 (24.1%)	2 (10.3%)	0 (0.0%)	5 (17.2%)	1 (3.4%)	0 (0.0%)
Transformative	3 (6.9%)	1 (3.4%)	0 (0.0%)	6 (20.7%)	4 (13.8%)	

The **Reformative - Private** category includes,[3] among others, the **Solar Gardens [Friend of the Earth Spain], El Hierro Wind Farm** and **Green Homes** [Hogares Verdes] initiatives, while the **Transformative - Private** category includes cases like **Energy Audits [Friends of the Earth Spain]** and **Noctisolar Ecoligh: light to hope.**

The **Solar Gardens [Friends of the Earth]** offers people the chance to become co-owner of a photovoltaic installation on a roof by means of one or more financial holdings. The electricity generated is supplied to buildings in the area through the grid to avoid energy losses. The aim is for citizens to take a stand in favour of people and the environment against the government's energy policy, which benefits the large electricity companies, but the commitment is limited to economic participation in the implementation of photovoltaic plants.

---

[3] Please see below on pp. 22-23 a table with all mapped cases according to each typology category.

El Hierro Wind Farm is the first island around the world that secure a constant supply of electricity by combining wind and waterpower and with no connection to any outside electricity network. The purpose of "Wind-Pumped Hydro Power Station" is to supply El Hierro, the Meridian Island, with electrical energy derived from clean, renewable sources such as water and wind.

Green Homes [Hogares Verdes] is an educational program born in Segovia from the Centro Nacional de Educación Ambiental (CENEAM), and now in 12 Spanish communities directed towards families concerned about their environmental impact and their daily decisions and habits. The program seeks to help them by promoting autonomy in the domestic consumption of water and energy and helping them make more ethical purchases

Energy Audits [Friends of the Earth] is a project that encourages the improvement of energy efficiency and savings in residential homes (thermal and electric, e.g. possible heat losses, characteristics of the domestic electricity) across Galicia, Ibiza, La Rioja, Mallorca, and Madrid. The aim is to improve efficiency and energy savings in homes, by carrying out studies on domestic habits that will lead to the reduction of CO2 emissions in the domestic sector, thanks to the identification of efficiency and savings measures. The results of the audits are also used for a study that will help put these types of projects into effect across the population.

Noctisolar Ecolight: light to hope was a project initiated by non-profit organizations that has devised high-performance portable solar lamps to combat energy poverty and limit the use of lighting systems that use liquid fuels that negatively affect the quality of the air inside homes. The product also responds to the demand for solar lighting systems by various cooperative NGOs. The aims were providing a response with low-cost, high-efficiency solar technology to the problem of domestic lighting in areas without electrification; designing a portable solar lamp to withstand the harshest environmental conditions providing the maximum amount of light possible; and creating a product demanded by cooperation NGOs given the lack of high-performance solar lighting systems. It ended in 2004 due to the bankruptcy of the T-SOL company (main source of funding of this initiative) and the lack of projection and economic resources.

The **organizationally embedded category** includes cases such as **EOLPOP – Living from the air of the Sky**, a pioneering initiative which involves the installation of a wind turbine with shared ownership among citizens who voluntarily provide the money needed to realize the project on the **reformative side**, and **Ecotown The Flower of Life** on the **transformative side**, an

grindependent Institute

UNIVERSIDADE DA CORUÑA

innovative project of sustainable urban growth, based on a natural geometric pattern ("The flower of life").

Also on the reformative side, **Granada in Transition** is a project initiated by a group of people from Granada (Spain) based on the creation of a portal for support and dissemination of all existing initiatives that face current challenges such as climate change, the economic and social crisis, inequalities and dependence on fossil fuels and their derivatives. In addition, EURONET 50/50 is a project aimed at mobilizing energy savings in schoolchildren through the implementation of the 50/50 methodology in 500 schools and nearly 50 other public buildings from 13 EU countries (specifically, 114 from Spain). The 9-step methodology increases energy awareness of the building users and actively involves them in energy–saving actions. The schoolchildren learn about how to be more efficient with energy and the importance of doing so and bring this information and influence back home to their families for a greater impact.

No initiatives were mapped he **public category** neither as a transformative nor as a reformative.

Looking at the collective cases of energy citizenship – where most of the mapped cases are located –, the **Reformative – Citizen-based and Hybrid** category includes, among others, the **GoiEner, Light at Home Oaxaca** and **Som Energia** initiatives, and the **Transformative - Citizen-based and Hybrid** category cases like **8th Life Ecovillage Project, Energy Bank Association** [Associació Bank d'Energia] and **Couso's Project.**

The main task of the **GoiEner** cooperative project is the generation and consumption of renewable energy with which they want to recover energy sovereignty, be self-sufficient and support other cooperative. The initiative wants citizens to regain control over this type of basic good and become aware of its importance, promoting responsible and sustainable energy consumption.

Light at Home Oaxaca is a rural electrification program   brought and adapted by the Spanish ACCIONA Microenergia foundation to the Mexican situation to give a solution to the Oaxaca (Mexican state) communities of population less than 100, where the electricity public utility (Comision Federal de Electricidad-CFE) had no plans of electrification. It aim is to bring a basic photovoltaic electricity service to homes in small remote locations, breaking their energy poverty.

Som Energia is a non-profit green energy consumer cooperative. Whose main activities are the marketing and production of energy from renewable sources. They are committed to driving a change in the current energy model to achieve a 100% renewable model.

grEEndependent Institute

UNIVERSIDADE DA CORUÑA

The **Energy Bank Association** [Associació Banc d'Energia] is a legally constituted association that promotes energy saving and efficiency for the benefit of those in a situation of energy vulnerability. This is done through pedagogy and transformative solidarity. Its mission is to contribute to solve two main problems toward energy transforming: (a) the problem of energy poverty (mainly, basic access to energy), improving the conditions of the homes of people or families in vulnerable situations; and (b) climate change, minimizing the waste of energy use. This is a pioneer initiative as there is not order projects analysed in Spain whose focus is energy poverty and climate justice.

The **8th Life Ecovillage** is a project in the Canary Islands started by NPO/NGO Asociación Gaia Tasiri to repopulate a rural farmstead and establish a community to do more effective work in facilitating the global and local transition, and also researching in action, organized around ecology and sustainability. They are a self-titled *Transition Town* (post-petroleum and off-grid communities), as they promote moving away from consumerism and adopting a lifestyle less dependent on resources and energy.

Couso's Project represents an integrated and open community where everyone operates under the principle of "Leave what you can; take what you need" pursuing the goal of maintaining energy self-sufficiency, providing a refuge for ecological travellers and residents. The self-sufficient ecovillage has many permanent residents and also hosts pilgrims making the Camino de Santiago.

The social movements typology category includes cases such as **100% Sustainable Madrid** on the **reformative side**, as well as **La Borda. Housing Cooperative in transfer of use** [La Borda. Cooperativa d'habitatge en cessió d'ús] and **No More Power Cuts Platform** on the **transformative side**.

100% Sustainable Madrid is s citizen-led movement supported by Alianza por el Clima (400 organizations) and which brings together different neighbourhood associations, the Madrid City Council and other entities. Among 11 other goals, Madrid aims to have municipal electric power contracts 100% renewable source guaranteed, to implement energy efficiency programs in schools, and to establish fiscal measures to promote energy efficiency and renewable energy.

La Borda. Housing Cooperative in transfer of use [La Borda. Cooperativa d'habitatge en cessió d'ús] is a Housing cooperative of assignment of use, under a non-speculative model. The members belonging to the cooperative can decide on juridical, legal and economic aspects and on the housing infrastructure itself. One of its main objectives is to give priority to the environmental

aspect, economically achievable through homes with a passive design or low energy consumption, with local, decentralized, and self-managed generation of renewable energy. Less total energy and materials consumed by sharing major appliances and amenities.

No More Power Cuts Platform [#NoMorePowerCuts] is a campaign created to denounce power cuts to families without resources and the abusive tariffs of the electricity sector. It represents a form of social mobilisation that is raising awareness of the scandalous injustice suffered by millions of people in Spain who have their electricity cut off because they cannot pay their abusive electricity bills. The campaign was initiated by non-profit organization, activists, "ordinary" people, and has been launched by more than twenty civil society organisations with six demands to put an end to power cuts for families without resources and the high tariffs suffered by users.

	Individual			Collective	
	Private	**Organizationally embedded**	**Public**	**Citizen-based and Hybrid**	**Social movements**
Reformative	• 'SOLAR GARDEN: FRIENDS OF THE EARTH SPAIN" • Green Homes • El Hierro wind farm • Green House • Limitless sun, limitless energy • SOLAR POOLS CAMPAIGN • USmartConsumer	• 'EOLPOP – Living from the air of the sky" • EURONET 50/50 • Granada in transition	-	• 'Evaluation of Energy Behavioural Change Programmes (BEHAVE) • Energy with a consciousness • GoiEner • Light at home Oaxaca • Som Energia	• 100% Sustainable Madrid
Transformative	• 'ENERGY AUDITS: FRIENDS OF THE EARTH SPAIN" • Noctisolar Ecolight: light to hope	• Ecotown The Flower of Life	-	• 'TRIBE : TRaIning Behaviours towards Energy efficiency: Play it! • 8th Life EcoVillage Project • Couso´s project • Energy Bank Association • SMARTER TOGETHER • THE VALLEY OF SENSATIONS ASSOCIATION	• 'FRIENDS OF THE EARTH SPAIN: COMMUNITARY ENERGY' • FRIENDS OF THE EARTH SPAIN: FREE THE SUN • La borda. Housing cooperative in transfer of use • NO MORE POWER CUTS PLATFORM
Other	-				

3.2 Other typology types selected

*Q76. If relevant for this case, which **other ideal-type(s) of ENCI** does the case shape/enable/support?*

In the process of characterising cases, it was possible to identify one or more other categories in addition to the main typology type. The **most often selected category was Reformative – Social movements: slightly more than one-sixth of the cases (17.2%) were placed here.** This was followed by the "Transformative – Organizationally embedded" type, as which 13.8% of the cases were classified, while the third most often selected secondary type (10.3% of cases) was "Transformative – Social movements".

	Individual			Collective		Other
	Private	**Organizationally embedded**	**Public**	**Citizen-based and Hybrid**	**Social movements**	
Reformative	1 (3.4%)	1 (3.4%)	1 (3.4%)	2 (6.9%)	5 (17.2%)	6 (20.7%)
Transformative	0 (0.0%)	4 (13.8%)	1 (3.4%)	1 (3.4%)	3 (10.3%)	

For example, there are two different classification categories for the case of the **Noctisolar Ecolight: light to hope**, which are "Transformative – Private" as the main type, and "Transformative – Organizationally embedded" as the secondary. This is because it tries to renew a part of the energy system, in a more sustainable and accessible way for citizens, proposing a radical change in the use of non-polluting energy in areas that are especially vulnerable in terms of energy and that can be extended to other public or private organizations.

Energy Audits [Friends of the Earth Spain] is classified mainly as a "Transformative – Private" as well as a "Reformative – Citizen-based and Hybrid" because, the study will allow conclusions to be drawn on the most effective patterns of energy saving and efficiency and on the attitude of the population towards them, according to consumption and actual savings in the period of this project, as well as the expected medium-term savings in households.

One of the best examples of a case that has been classified into several areas is **No More Power Cuts Platform** which is located as a "Transformative – Social movement" as the main type, because collective actors act in demonstrations called in different cities in Spain promoting energy democracy and social justice; but also, as a "Transformative – Public" since the case also refers to individual actors who are called upon to participate in the signing of the manifesto, using propositions to promote energy democracy.

Other example can be found in the case **Ecotown The Flower of Life** is classified mainly as a "Transformative – Organizational" as well as a "Transformative – Citizen-based and Hybrid" because creating the urbanization implies the participation of the collective and its acceptance to adopt a change in energy consumption, adopting the exclusive use of clean and renewable sources of energy in every community that is part of the project.

It is also important to highlight that in several cases **the need for a new category, "collective, organizational",** has been raised, like in the case of **EOLPOP – Living from the air of the sky**, because "the case also refers to individual/collective actors who aim at enhancing the acceptance and acceptability of energy transition in a reformative to transformative way, using concrete actions and propositions toward energy transition and to promote energy democracy". In other cases, the distinction between "transformative-reformative" such as in **EURONET 50/50, The Valley of Sensations Association** [Valle de las Sensaciones] and the four mapped initiatives from Friends of the Earth Spain **Free the Sun, Energy Audits, Solar Gardens and Community Energy** was difficult to disseminate. Studying these and similar cases in Spain and in the other European countries in more detail will create the basis for the further refinement of the conceptual typology, which is one of the objectives of the EnergyPROSPECTS project.

grEEndependent
Institute

UNIVERSIDADE
DA CORUÑA

Part 4: Aspects of energy citizenship

4.1 More and less active forms of energy citizenship

*Q48. In terms of the form of ENCI it shapes/enables/supports (or shaped/enabled/supported), please place the case on a **scale of passive-active** below, by moving the slider.*

For this question, responses were collected using a scale of 1 to 100 by the researchers participating in the mapping activity, and then divided into the following five categories: 1-20 very passive, 21-40 passive, 41-60 moderately active, 61-80 active, 81-100 very active. The **more passive a case is, the more it involves energy consumption**, which means that it is not an ENCI yet but rather a passive consumer of energy due to disempowerment, disillusionment, or disinterest. The **more active a case is, the more aware, empowered, and active it is**, which means that it involves not only changing individually and joining others but activating and empowering others and helping others to become active.

On the scale of passive-active, **most of the Spanish cases (48.3%) were classified as "Active".** Almost one-third (31.0%) of the cases were classified into the "Very active" category, and a small percentage (6.9%) into "Moderately active", "Passive" and "Very passive". Regarding this question, all cases were classified.

Scale of passive-active

- Very passive
- Passive
- Moderately active
- Active
- Very Active

6.9%
6.9%
6.9%
31.0%
48.3%

n = 29
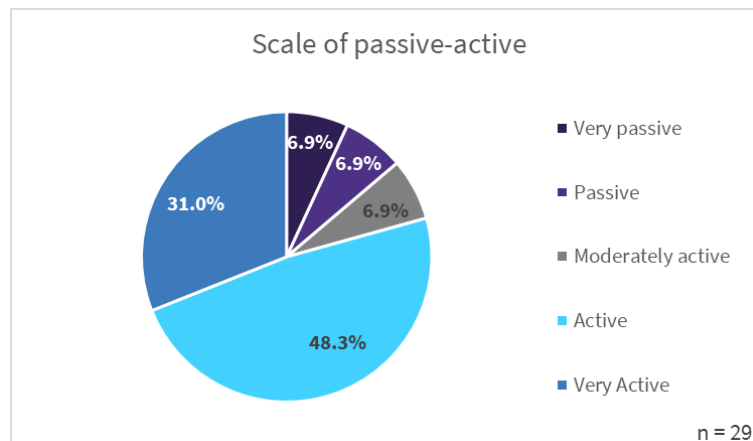
The **very passive** category includes one case, **Limitless sun, limitless energy,** whose aim is at promoting positive attitudes towards the use of solar energy, by actions as informing and educating social agents (city councils, associations, professional groups, promoters, investors, etc.) about the importance and convenience of investing in solar energy.

An example of the **passive** category can be found at **USmart Consumer.** It presents an approach that seeks to guide consumers to save energy at home by changing their behaviour, taking advantage of the benefits of smart meters, so that the focus is on citizens becoming actively engaged

grÜndependent Institute

UNIVERSIDADE DA CORUÑA

in consumption, although their role is as recipients of information without being involved in action. Also, in this category is introduced **Energy Audits [Friends of the Earth Spain]** due to their aim at promoting "energy saving and efficiency criteria in households" by audits that are available for households who only participate by giving information through a questionnaire on their attitudes: on their assessment of the audit, the measures they would like to implement as proposed in the technical report the technical report, why, which ones they do not want to implement, and which ones they want to leave out of future actions. or not, and which ones they want to leave out of future actions, with or without financial cost, that the households want to carry out.

The **moderately active** category includes cases such as **Green Homes** because this case "aims to empower the participants towards the formation of responsible, conscious consumers, aware of environmental problems" as well as **8ᵗʰ Life Ecovillage Project** because they are taking up the Eco Village idea and welcoming volunteers from the European Solidarity Corps and offering workshops to the local community.

The **active** category includes cases such as **Solar Garden [Friends of the Earth Spain]** because in this case "disobedient people are jointly fighting for a change in the energy model. They propose that people become co-owners of a rooftop photovoltaic solar installation through capital contributions that will be recovered over the life of the installation thanks to the sale of the electricity it produces".

The **very active** category includes cases such as **Ecotown The Flower of Life** because, according to the case researcher, "the actors, based on responsibility, act to produce the changes that part of society asks for, such as creating sustainable urbanizations and a community
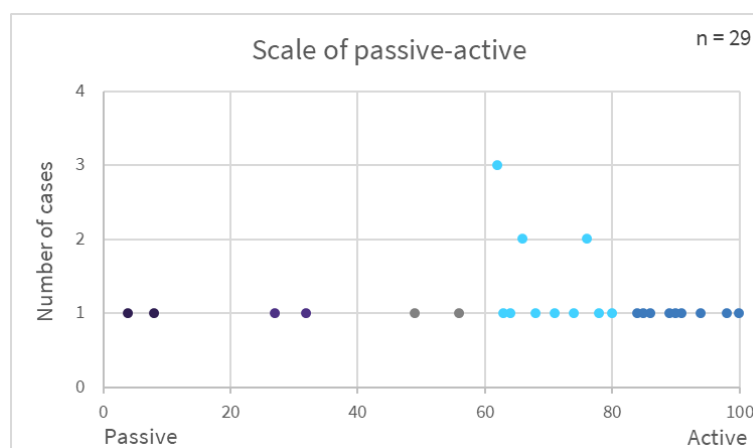
with values related to caring for the environment, with renewable energy systems". The most active case is actually **Smarter Together** because "they foster user-centric innovation by involving even more people and stakeholders in the co-creation and design of new services and solutions".

In the graph we depict the exact placement of the cases on the Passive-Active scale. It is clearly visible that most cases selected for mapping in Spain are located in the Active area of the scale.

4.2 Private and public forms of energy citizenship

Q50. In terms of the form of ENCI it shapes/enables/supports (or shaped/enabled/supported),

*considering the **private-public distinction**, please select which applies most to this particular case.*

In Spain, the **distribution of the cases mapped on the public-private scale is very diverse**. The largest proportion of them (34.5%) were classified as "public, larger scale", but the "public, smaller scale" share is just a little lower (27.6%), while the third highest proportion (24.1%)

Private-public distinction

- Private - individual level
- Private - household level
- Private/public at organisations
- Public, smaller scale
- Public, larger scale

n = 29

involve "private – household level" cases. Only one-tenth of the cases (10.3%) were classified into the "private/public at organisations" category, and fewer (3.4%) were classified as "private – individual level".

For this question, all cases were classified; that is, none of the cases were grouped under the category "others" since all cases were clearly identified towards either the private or the public sphere.

Private - individual level action and change means, for example, individual-level action in the home, individual lifestyle change, and low-carbon consumption, like the case of the **USmart Consumer,** because it "seeks to guide consumers to save

Private-public distinction

Private | 10.3% | 24.1% | 3.4% | 27.6% | 34.5% | Public

0%   20%   40%   60%   80%   100%

n = 29

energy at home by changing their behaviour, and getting awareness about smart meters, especially on their role as information and monitoring tool of household energy consumption".

Private - household level action and change means, for example, household-level action, still in the home, including more radical change like prosumerism and energy self-sufficiency, like the case of **Solar Pool Campaign**, because the aim is to "make people 'unplug' from the main grid
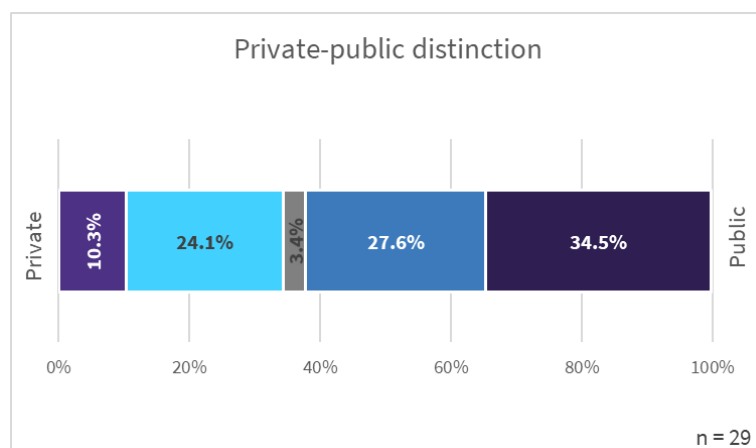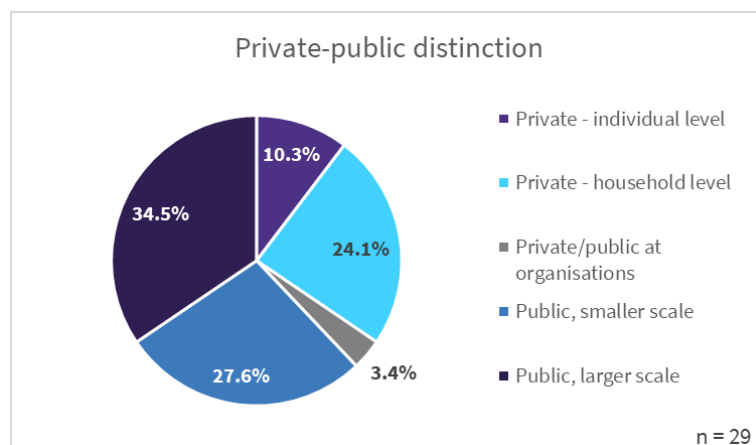
by producing their own solar energy at home with pools", as well as **Light at Home Oaxaca** since it is a program that "seeks to bring energy to the homes of populations that do not have it through the use of photovoltaic cells".

Private/public at organisations means change and action at organisations, like the case of the **EURONET 50/50**, because the aim of this project, based on "the 9-step methodology" is to "increase energy awareness of the building users and actively involve them in energy–saving actions". To do so, "achieved financial savings are shared equally between the building users and the local authority which covers the energy bills".

Public, smaller scale means change and action in smaller groups and/or on a smaller scale (e.g. community groups, local shared-ownership and/or renewable energy projects), like the case of **Couso's Project**, because "it is an integral, comprehensive and open community of all who practice the gift economy and do not believe in private property" and **La Borda. Housing Cooperative in transfer of use** since it "is constituted as a community group on a small scale but that is part of the neighbourhood effort of the Can Barlló neighbourhood, in Sans, Barcelona".

Public, larger scale means change and action at the district or settlement level or even a larger scale, including the societal level (e.g. low-carbon districts/towns, city-level public consultation, protests, transition towns) like the case of **Evaluation of Energy Behavioural Change Programmes (BEHAVE)** because it "aimed to enhance the performance of energy-related behaviour change programmes by developing an effective model for design, implementation and evaluation of this type of programmes for use by policy makers, programme designers/managers, and consumer organisations".

4.3 Level of hybridity in the cases of energy citizenship

*Q52. In terms of the form of ENCI it shapes/enables/supports (or shaped/enabled/supported), please select the **appropriate level of hybridity** for the case…*

In Spain, **most of the cases mapped, almost two-fifths of them (37.9%), were classified as "low"** in terms of the level of hybridity. One-third (34.5%) of the cases were classified into the "no hybridity" category and about one-fifth (20.7%) into the "medium" one. A very small percentage of cases were categorized as "high hybridity".
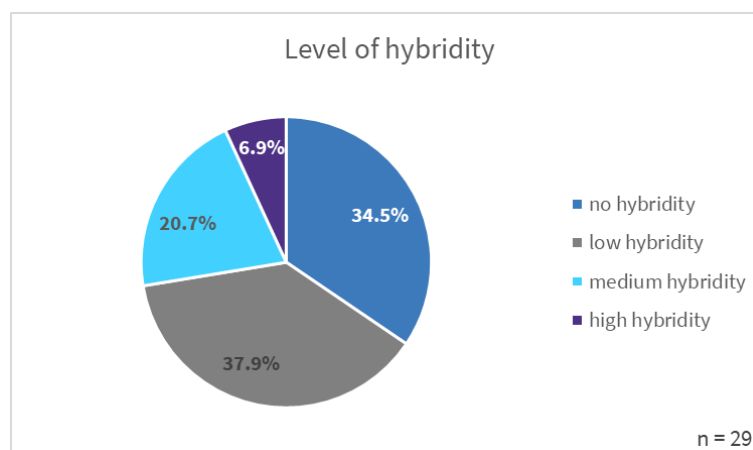
For this question, all cases were classified.

No hybridity means that only one type of actor/institutional logistic is/was involved or represented in the case, as in the case of **Couso's Project** because the "there is only one type of actor who pursues common objectives".

Low hybridity means that two or three types of actors/institutional logistics are involved or represented in the case, as in the case of **EOLPOP – Living from the air of the ski,** where the main actors are members of NGOs (Greenpeace), of the cooperative Gesternova and the people (families and entities) who have committed to this project.
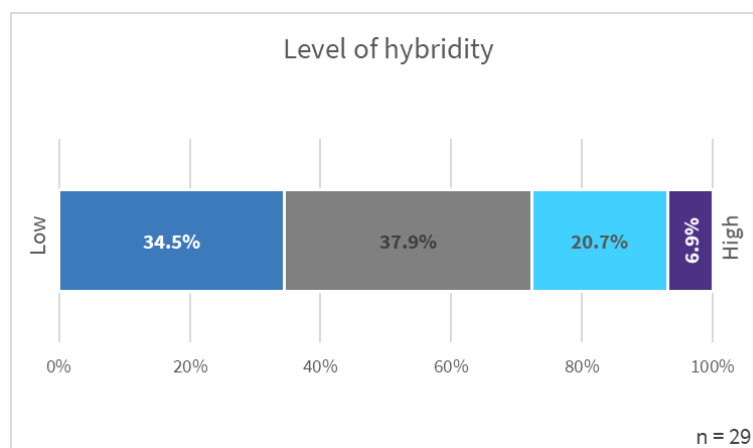
Medium hybridity means that four or five types of actors/institutional logistics are/were involved or represented in the case, as in the case of the initiatives from **Friends of the Earth Spain** such as **Free the Sun** where "local groups" are involved, or **Community Energy** that involve "local working groups" and, in both cases, at the European level, "they are part of Friends of the Earth

International", for that reason "they are coordinated with the other Friends of the Earth Europe groups; and, as part of the federation, they seek to influence European policies by lobbying MEPs and presenting their alternatives"

High hybridity means that more than five types of actors/institutional logistics are involved or represented in the case, as in the case of **Smarter Together,** which "involves 30 partners from eight countries, among which key smart cities industrial players, dynamic SMEs, building owners, universities, research and technologies organisations, major European network, major player in the standardisation field"

4.4 Citizen power

Q54. In terms of the form of ENCI it shapes/enables/supports (or shaped/enabled/supported), considering **effective citizen power/ control,** *please select which applies most to this particular case.*

In Spain, the **majority of cases mapped, more than a third (34.5%), were classified as "high"** in terms of the citizen power/control dimension of the typology. A quarter (24.1%) of the cases were classified into the "medium" category, and just over one-fifth (26.8%) into the "low" one. A small percentage (3.4%) were classified as "no effective voice citizen power/control"
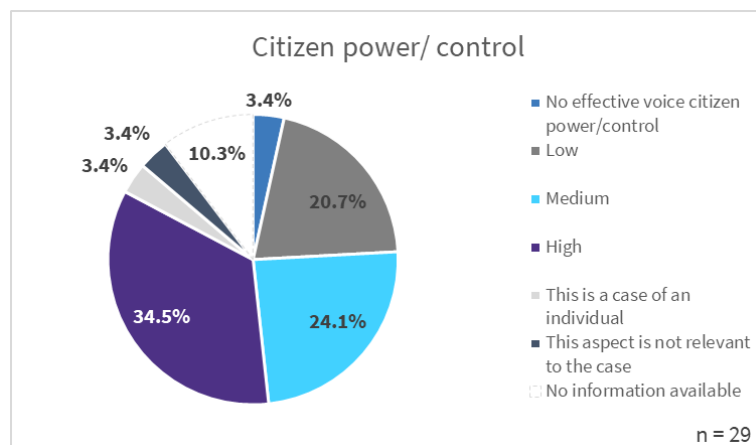
Citizen power/ control

- No effective voice citizen power/control
- Low
- Medium
- High
- This is a case of an individual
- This aspect is not relevant to the case
- No information available

3.4% · 3.4% · 3.4% · 10.3% · 20.7% · 24.1% · 34.5%

n = 29

About one-fifth of cases (20.5%) were not classified according to this category. For almost one-tenth of them (10.2%), the criterion was not relevant because of the nature of the case: a very small percentage (3.4%) were individual cases or were considered cases in with this aspect was not relevant. In one-tenth of the cases (10.3%) "no information available", meaning that based on the available data the researcher was unsure how to classify the case.

Low citizen power means that "When expressed (e.g., within "invited" deliberative processes), citizens' voices remain hardly heard or considered. Being in the minority, or considered this way, citizens' voices do not count, or in a voting process the framings tend to limit the possibility of expressing

Citizen power/ control

Low — 4.2% | 25.0% | 29.2% | 41.7% — High

0%   20%   40%   60%   80%   100%

n = 24
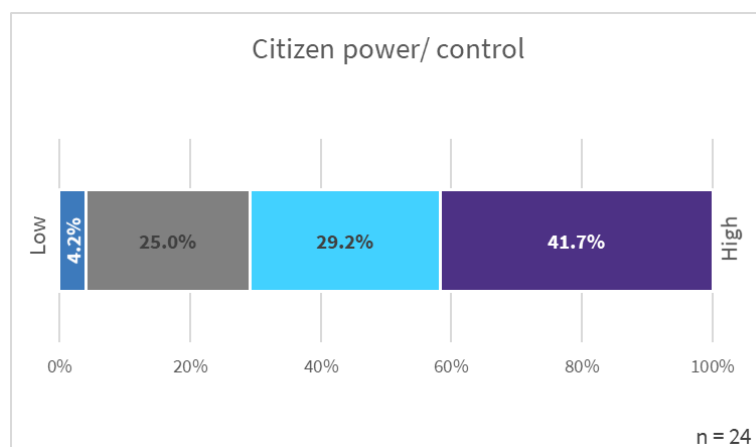
an opinion", as in the case of **USmart Consumer** because the aim is only the "development of an information campaign aimed at consumers to increase their awareness level about energy efficiency in general and about smart meter in particular" but citizens' opinions are not gathered opinions to know how to conduct the information process.

grÜndependent Institute

UNIVERSIDADE DA CORUÑA

Medium citizen power means that "citizens can express their views, but their voices are not included on a compulsory basis (within deliberative, representative or consultative processes). Within organised / participative structures, citizens remain a minority group; i.e., are unable to impose their views on other groups", as in the case of **Energy Audits [Friends of the Earth Spain],** because "through these audits, the aim is to estimate whether the public is willing to undertake measures, and of what type and with what financial return in the face of comprehensive information on what the savings could be. Based on the information they are offered, in a personalised way, people decide whether they want to get involved in energy saving. In fact, through the audits, they have observed greater potential for voluntary savings on the part of citizens than what is quantified as realistic by the European Union".

High citizen power means that "Citizens exert effective control, and their votes are mandatory. This governance takes place mostly in an "invented" process (as opposed to "invited" ones described by Radtke et al., 2020). Citizens represent a majority group, are empowered enough to control the process, and thus make their voices predominant", as in the case of the **No More Power Cuts Platform** in which "citizens are called upon to participate in the signing of the manifesto, as well as in the demonstrations called in different cities in Spain to demand for this injustice suffered by millions of people in our country".

No effective voice citizen power/control means that citizens' voices do not count, as happens in the case of **El Hierro Wind Farm** because "only administration is represented, not citizens".

4.5 Justice and equity

*Q56. In terms of the form of ENCI it shapes/enables/supports (or shaped/enabled/supported), considering energy, mobility, or more holistic **justice and equity issues**, please select which applies most to this particular case.*

In Spain, among the cases that were mapped, almost two-fifths (37.9%) of the cases are classified as "high". Almost a quarter (24.1%) of the cases were classified into the "medium" category, slightly below (17.2%) as "justice/equity not considered", and none of them are considered under the "low" category.

Justice and equity issues

- Justice/equity is not considered
- Low
- Medium
- High
- This is a case of an individual
- No information available

17.2%   17.2%   3.4%   24.1%   37.9%

n = 29
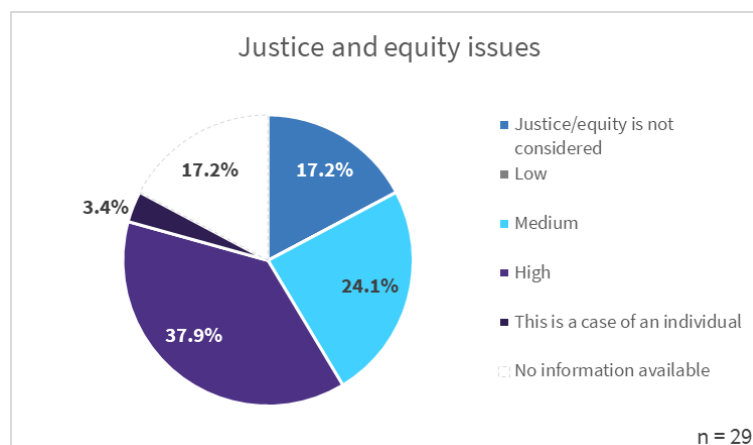
A fifth of the cases (20.6%) were not classified by researchers. The majority under this percentage (17.2%) were classified as "No information available", meaning that not enough information and data were available through desk research for the researcher to make an informed decision on this topic (such as, e.g. **Limitless sun, Limitless energy**), and the small remaining proportion (3.4%) were individual cases.

Justice/equity is not considered for example in the case of **USmart Consumer** because, as the case researcher observed, "the project, through actions directed both to consumers and energy operators, aims to promote the correct use of smart meters by

Justice and equity issues

Low   21.7%   30.4%   47.8%   High

0%   20%   40%   60%   80%   100%

n = 23
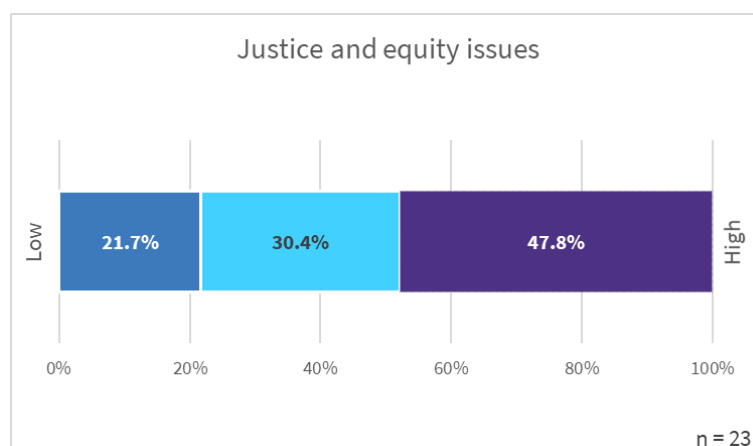
consumers and the development of new services related to smart meter by operators" and, in that sense, energy justice and equity are not considered a scope of the project.

Medium means that equal access is granted to all concerned citizens, but the framings tend to limit them to a certain geographical area or amount of financial contribution, etc. which does not

grün dependent Institute

UNIVERSIDADE DA CORUÑA

guarantee "real" equity, like in the case of **Energy Bank Association**, where "Participation in the initiative is limited to the capital contribution, so equity is not guaranteed as it is limited to the provision of a minimum of capital to be part of the initiative", as well as **Valley of Sensations Association [Asociación Valle de las Sensaciones]** in which "to have a legal framework, and not to enter any restricted and conditioned tourist category, this project is made up exclusively by the members of the association, that pay a yearly membership fee of 100 €. For joining any activities, you need to get a member of it".

High means that involvement is fully open, without specific conditions of participation, and issues such as energy poverty, gender, and inclusivity are taken into account and foster adaptive measures aimed at guaranteeing more justice/equity like in the case of **100% Sustainable Madrid** where their proposal number 7 refers specifically to "apply measures to combat energy poverty: processing of the social bonus, etc.".

4.6 Environmental sustainability, recognizing carbon and other ecological limits

*Q58. In terms of form of ENCI it shapes/enables/supports (or shaped/enabled/supported), considering **environmental sustainability**, please select which applies most to this particular case*

*Q60. Does/did the case shape/enable/support ENCI that **explicitly recognizes the ecological limit** of atmospheric carbon emissions…?*

*Q61. Are there **other ecological limits** (e.g. biodiversity loss, deforestation, freshwater use, chemical pollution, etc.) mentioned and recognized as well?"*

In Spain, the **majority of cases (62.1%) were classified as "high"** according to the environmental sustainability dimension of the typology. Almost a quarter (24.1%) of the cases were classified into the "medium" category and few (10.3%) into the "low" one.
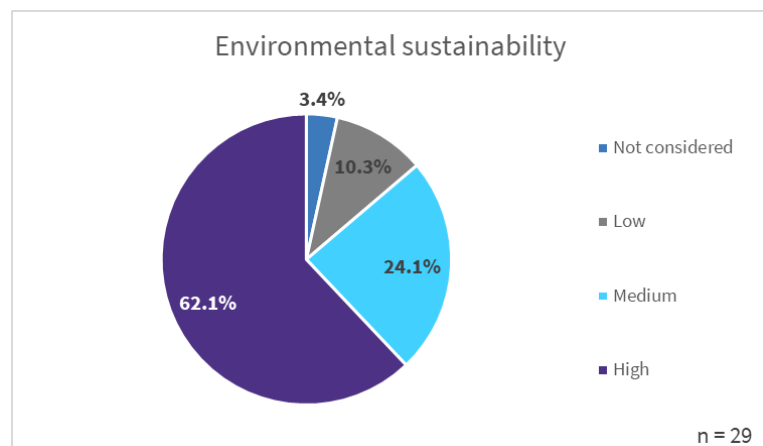
Only a very small proportion (3.4%) were not classified in this category, and these are listed as "other".

Low here means that "if given any consideration, environmental sustainability issues are mostly taken for granted and not explicitly taken into account; in the lowest forms, environmental sustainability tends to be dealt with as a positive or negative externality" like in the case of **Solar Pools Campaign,** because here the focus is on the energy as "they Seeks to contribute to the energy transition making people 'unplug' from the main grid by producing their own solar energy with pools".
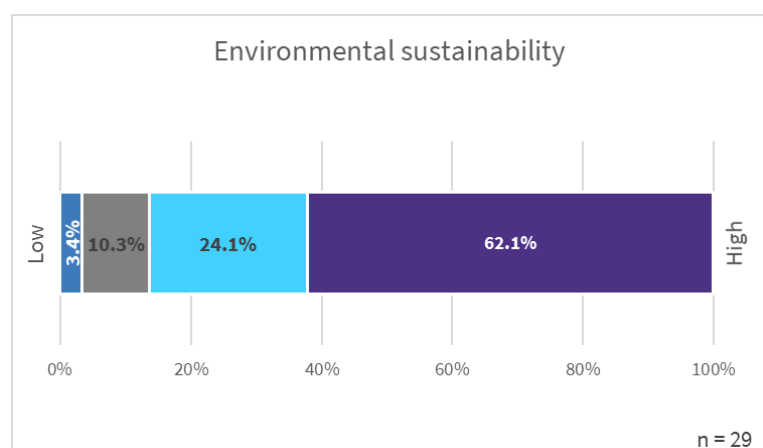
Medium means that "environmental sustainability is part of the process or initiative, but this concern is addressed superficially and without dedicated assessment, and energy remains the main focus" like in the case of **Couso's project** where "they seek to maintain energy self-sufficiency and provide a haven for green residents".

**High** was defined as "environmental sustainability is a core issue, which is associated with a holistic strategy, and its assessment through indicators is seen as desirable" like in the case of **La Borda. Housing cooperative in transfer to use**, because "Since its inception, the cooperative has advanced towards active forms of giving priority to the environmental aspect through passive design or low consumption homes with local, decentralized and self-managed generation of renewable energy. It also encourages the achievement of local and closed cycles of energy, water and waste".

Related to environmental sustainability, we also investigated the cases' approach to recognising and taking action related to the ecological limit of atmospheric carbon emissions. Regarding this question, in the **majority of cases, more than one-third (34.5%) were classified as "implicit recognition with mention"**. Almost one-quarter (24.1%) of the cases were classified into the "explicit recognition with mention" category, and in the same proportion into "no recognition". Less than one-fifth (17.2%) of them into the "explicit recognition". None of the cases were not classified.

Recognizes the ecological limit of atmospheric carbon emissions

- No recognition
- Implicit recognition
- Explicit recognition
- Explicit recognition with mention

24.1% / 24.1% / 34.5% / 17.2%

n = 29

No recognition is understood to mean that "there is no mention of carbon limit or sustainable carbon footprint", like in the case of **No More Power Cuts**, which is mostly focused on protesting against power cuts to families without resources and the abusive tariffs of the electricity sector, so that ecological limits (specifically carbon emissions) are not mentioned.
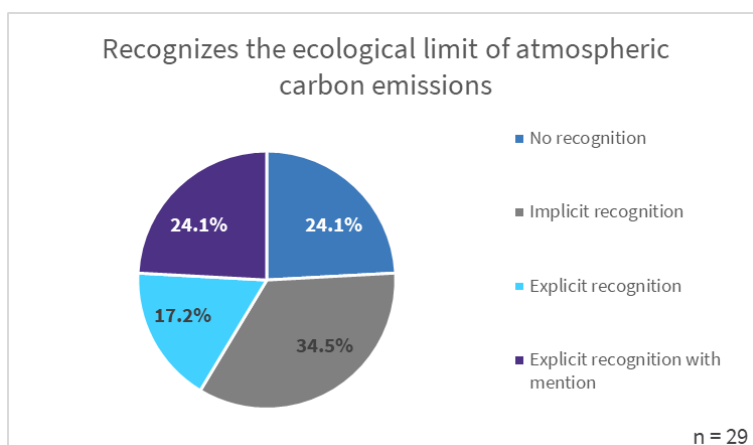
Implicit recognition means that there is "No explicit mention of the ecological limit of atmospheric carbon emissions or sustainable carbon footprint, but despite the lack of formal references to either of them, the case is involved in activities aimed at reducing consumption and/or

Recognizes the ecological limit of atmospheric carbon emissions

Low	24.1%	34.5%	17.2%	24.1%	High

0%   20%   40%   60%   80%   100%

n = 29

the emission of carbon", like in the case of **Valley of Sensations Association [Asociación Valle de las Sensaciones]**, which promotes an experiential integration of humans into nature: from "Living creativity in sensual contact with nature" towards "providing inspiration and knowledge for setting up creative communal and sustainable projects" and now to "eco village laboratory for the communal development and mediation of sustainable living concepts", thus indirectly but strongly encouraging people to reduce their daily-life-activities-related carbon emissions.

Explicit recognition is defined as meaning that "the ecological limit of atmospheric carbon emissions or sustainable carbon footprint is mentioned in core documents and the actors involved in the case are engaged in attempts to reduce consumption and/or emission of carbon", like in the case of the **Som Energía**, which is an initiative specifically aimed at ending dependence on fossil fuels / phasing out fossil fuels, through activities such as "the marketing and production of energy from renewable sources" to drive a change in the current energy model to achieve a 100% renewable model.

Explicit recognition with mention means that, in addition to mentioning the ecological limit of atmospheric carbon emissions or sustainable carbon footprint, the maximum sustainable carbon footprint and/or emissions are also defined in associated documents, like in the case of the initiatives such as **Energy Audits, Solar Garden, Free The Sun** and **Community Energy** that are promoted by **Friends of the Earth Spain** (which, in general, "argue for the need to address five main areas: climate justice, natural resources and waste, food sovereignty, economic justice, cooperation and biodiversity"). Having different motivations and objectives, these four initiatives share the idea of introducing changes towards a more sustainable society through proposals that have a direct recognition of the need to reduce the carbon footprint (reducing consumption and improving energy
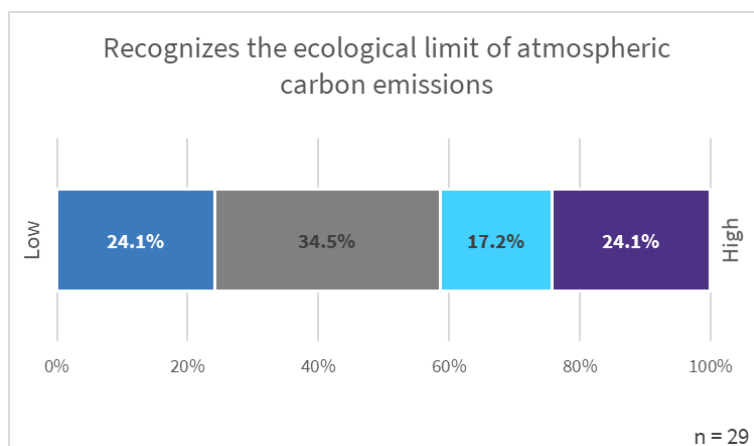
efficiency in households, introducing alternative forms of supply and consumption through renewable energies, and working to raise awareness of these aspects).

Almost three-quarters of the Spanish cases (69%) do not mention and recognize other ecological limits as well, while one-fifth (20.7%) of them do, and only a smaller proportion (10.3%) were not classified according to this category: these are listed as "No information available" for making an informed judgement.

Are other ecological limits mentioned and recognized as well?

- Yes
- No
- No information available

10.3%
20.7%
69.0%

n = 29
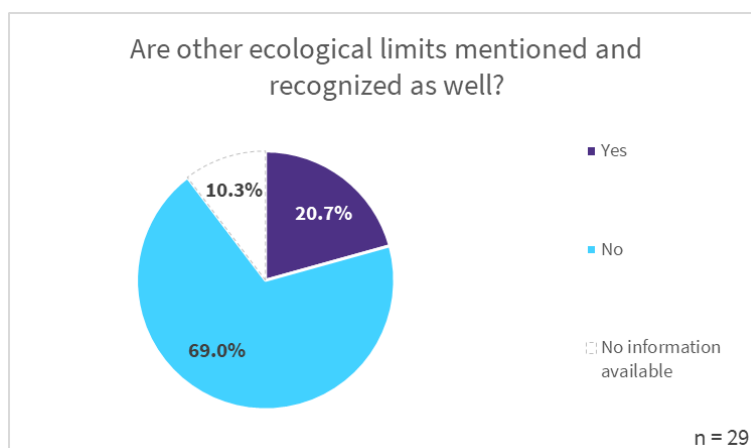
For example, in the case of **No More Power Cuts Platform** "specifically refer to their work with regard to ensuring that "Spain respects its international commitments and ensures compliance with Article 25 of the Universal Declaration of Human Rights and General Comment 4 of the Committee on Economic, Social and Cultural Rights, according to which a decent standard of living requires adequate housing with access to basic supplies such as electricity, water and heating, as well as to enforce European legislation on electricity supply, which obliges Member States to protect vulnerable users and to prohibit electricity cuts during critical periods".

In the case of the **Green Homes**, the presents the participants with specific challenges of a collective. To begin with, "the objective is to reduce emissions of CO2 of 5.2% (this percentage has a symbolic value, since it is the reduction average greenhouse gas emissions set in the Kyoto Protocol) and a reduction in domestic water consumption from 6 to 10%. Raising these specific objectives, we intend to promote a culture of measurement in matters of Green Homes".

Similarly, in the case of **GoiEner**, in their strategic plan they mention "Climate change: the alteration of the climate due to the emission of 'carbon' into the atmosphere and oceans, as a direct and first consequence of human activity".

grEEndependent Institute

UNIVERSIDADE DA CORUÑA

4.7 Frontrunners, early adopters and laggards

*Q63-Q64. In terms of the form of ENCI it shapes/enables/supports (or shaped/enabled/supported), considering the **laggard - frontrunner distinction**, please select which applies most to this particular case – national and European level context.*

As indicated by the question above, the issue of frontrunners and laggards was investigated at both the national and European levels as the assumption was made that some cases, although frontrunners in their national context, may be considered early adopters, etc. when evaluated at the European level.

At the national level, the **majority of the Spanish cases (27.6%) were classified as "frontrunners",** followed by "early adopters" (20.7%). One-tenth of the cases (10.3%) where into the category "laggard/ late adopters" and slightly less (6.9%) as "late majority". A small

proportion (3.4%) were classified as "early majority". Related to this question, almost one-third of the cases (31.0%) were no classified, as the information was not clear or not enough to make the decision of classifying into the typology, so there were under the category "No information available".
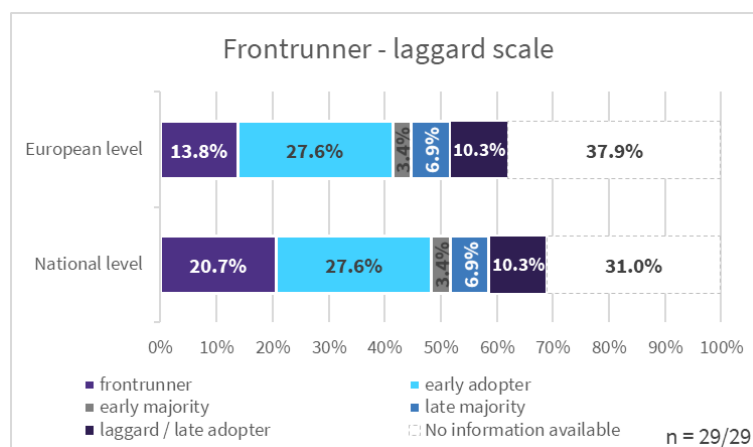
At the European level, the distribution is diverse as well: **almost one-third of the cases (27.6%) were classified as "early adopters"**, more than one-tenth of them (13.8%) as "frontrunners", and one-tenth of them (10.3%) as "laggard / late adopters". A few of them (6.9%) were classified as "late majority" and only a very small proportion (3.4%) as "early majority". Almost two-fifth (37.9%) were not classified at this level: these are listed as "No information available".

Frontrunner is understood to mean that the case "unleashes the change process, starts the innovation, whether technological or social, and takes it through the first difficult stage, i.e. pioneers trendsetters, those who wish to lead and/or have the resources to lead the change process". Frontrunner examples of cases that were classified as such at both the national and European level (altogether 3 cases) include **TRIBE: TRaining Behaviours towards Energy efficiency: Play it!**,

because "at the national level, Spain trigger the process of technological or social change, and carries it through the first difficult stage (and there is no evidence about similar programmes), and also in front of the rest of Europe as they are the initiators". The frontrunner category also includes cases like **Noctisolar Ecolight: Light to hope** because in this initiative "Spanish actors created portable solar lamps as a product demanded by cooperation NGOs and to respond with low-cost, high-efficiency solar technology to the problem of domestic lighting in areas without electrification, and at a European level, this experience let to achieve the conclusion that the maintenance and recycling of these technologies must be considered when they are transferred to undeveloped countries". In this sense, Fundación Tierra maintains the trademark registration. There is no patent on control electronics or as a utility model. Other European projects managed to consolidate the model but by outsourcing production to China, as is the case with Glowstar.

Early adopter(s) are defined as "opinion leaders who become enthusiastic about new products/ways of doing things/solutions, etc., share their benefits with others and adopt first". There are six cases which was classified into the early adopter category for both levels: e.g. the **Valley of Sensations Association [Asociación Valle de las Sensaciones]**, because "other eco-villages exist before in Spain, such as Sunseed Desert Technology (founded in 1986 in Los Molinos del Río de Aguas in Almería), but they do not address the same proposal as this one, as well as in the rest of Europe, from where Achim gathers experiences from his travels through community projects and eco-villages in various parts of the world".

Early majority means "early adoption, but deliberate, less venturesome and independent than earlier adopters". In this category, at Spanish level, there is only a case, **Energy with Consciousness**, an educational project of activities in schools to raise awareness of responsible energy use among young people; and at the European level, there is also only one case – **Community Energy [Friends of the Earth Spain]**, which was also categorised as an early adopter in Spain because in Spain there were already some actions initiated by this association since 1979, being this specific action the first to be carried out, but at European level this association already existed since 1969 and was probably well ahead of the Spanish association in terms of promoting community renewable energy generation projects, and therefore it was considered less innovative in this sense.

Laggard / late adopters means "the case is traditional, slow to change, not yet in a position to change, or those who are resisting change, or who do not wish to 'adopt' and change". Two examples of cases that were classified as such at both the national and European level (altogether 3

cases) are **Solar Pool Campaign** because "it is an initiative that joins many previous ones in Spain and Europe that seek to contribute to the energy transition and initiate the change towards a new energy model where the citizen, the consumer, must be considered the centre and not just someone who pays for the system" and **Green Homes,** which "pay attention on reducing the impact but in a traditional way, very focused on reducing energy consumption".

Late majority means "the case only adopts change when there is a strong feeling of being left behind or missing out". When considering both the European and the National level, only one case was classified into this category from Spain, **Limitless sun, limitless energy**, because "the case follows other actions that have already been carried out for years. The case focuses on reducing the impact but in a traditional way, very focused on reducing energy consumption". Only classified at national level as "late majority" is the case of **100% Sustainable Madrid,** which is under the category "I don't know / I cannot determine based on available data and information" at European level since "the case is of a local nature and does not transcend at European level". On the contrary, the case **No More Power Cuts Platform is** classified as "late majority" at European level, but as "early adopter" at national level, because "there are other action platforms on other issues related to impoverishment in Spain as a result of the European crisis, but not specifically on fuel poverty. at the European level, this platform is understood to have some relevance, as it is supported by CHANGE.ORG"

grÜndependent
Institute

UNIVERSIDADE
DA CORUÑA

4.8 Pragmatic and transformative change

*Q66. In terms of the form of ENCI it shapes/enables/supports (or shaped/enabled/supported), please place the case on a **scale of pragmatic - transformative change**, by moving the slider.*

For this question, responses were collected from case researchers on a scale of 1 to 100, and for the analysis were divided into the following five categories: 1-20 very pragmatic, 21-40 pragmatic, 41-60 moderately transformative, 61-80 transformative, and 81-100 very transformative. A case is understood to be **more pragmatic if it mainly operates using pragmatic involvement,** which often refers to involvement within "concrete projects" or activities and is often characterised by a preoccupation with technology and efficiency. A case is defined as **more transformative if it is more about transformative involvement,** embraces broader energy transition goals and climate change, and is concerned with and focuses on energy democracy and/or sufficiency.

Using the scale of pragmatic-transformative change, **in equal proportion (31%) most of the Spanish cases were classified at opposite ends as "very transformative" and "very pragmatic".** Almost one-fifth (17.2%) of cases were classified into the "transformative" and more

Scale of pragmatic - transformative change

- Very pragmatic
- Pragmatic
- Moderately transformative
- Transformative
- Very transformative

31.0% / 31.0% / 6.9% / 13.8% / 17.2%

n = 29
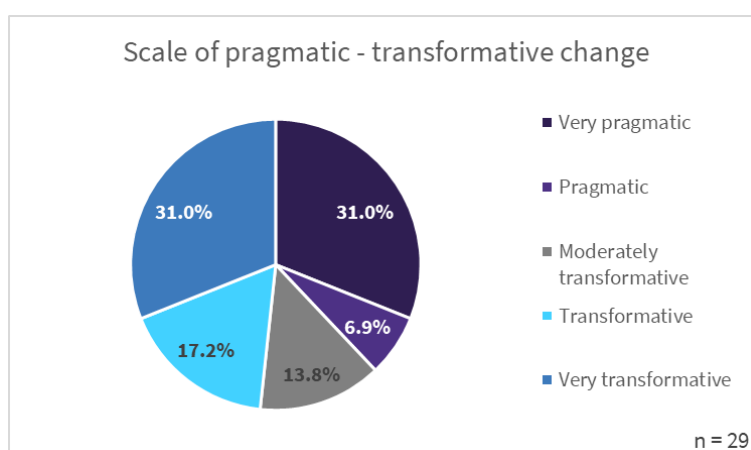
than one-tenth as "moderately transformative" category, as well as a small proportion (6.9%) into the "Pragmatic". For this question, all cases were classified.

The **very pragmatic** category includes cases such as **El Hierro Wind Farm** and **Solar Pool Campaign** because in both cases "the role of citizens is limited to changing the way energy is consumed".

The **pragmatic** category includes cases such as the **Granada in Transition** because it "carries out specific projects and activities, and through Facebook forms a support and dissemination portal for all existing initiatives that are already in 'transition' to strengthen them and reach the entire city", but doesn't facilitate deeper change, nor questions democracy deficits.

The **moderately transformative** category includes cases such as **EOLPOP – Living from the air of the ski** because "it is an initiative of shared ownership, making solidarity between urban and rural people possible, and move away from big energy

Scale of pragmatic - transformative change

companies and contribute to the democratization of energy. Therefore, they not only pursue the objective of 'expelling polluting energy from the electricity system' (replacing it with clean electricity), but also 'make it visible that citizens, individually or collectively, can take control of their energy'".

The **transformative** category includes cases such as **Valley of Sensations Association [Asociación el Valle de las Sensaciones]** because its creator Achim Burkand, tried to develop "a 'eco-technical' infrastructure user-friendly and educational. All tasks and responsibilities are documented and support a community experience where participant is involved at all levels. The team facilitates the integration and tools to enrich everyone".

The **very transformative** category includes cases such as **Ecotown The Flower of Life** because "its objective is to create a totally sustainable and self-sufficient urbanization with its own internal economy and with specific areas for environmental education, with a holistic approach".
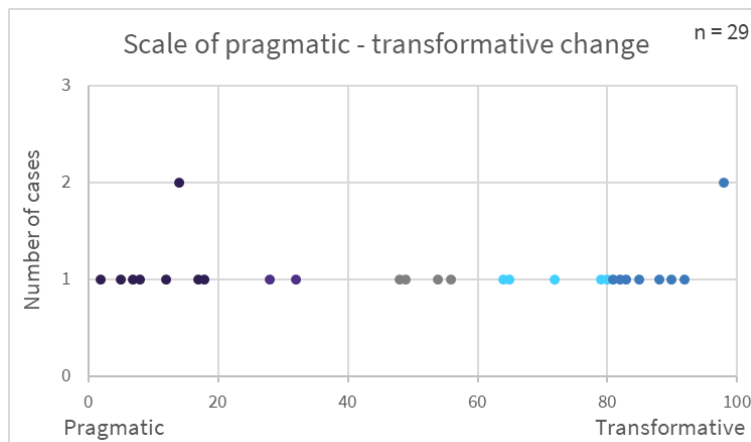
4.9 Contesting the current energy system

*Q68. In terms of the form of ENCI it shapes/enables/supports (or shaped/enabled/supported), please select which applies most to this particular case in terms of **contesting the current energy system**..?*

Of the Spanish cases that were mapped, most of them (44.8%) were classified as "high" in terms of at which level they contest the current energy system. One-fifth (20.7%) of the cases were found not to be contesting the system, and one-tenth (10.3%) were independently classified as

Contesting the current energy system

- Does not contest
- Low
- Medium
- High
- No information available

n = 29

"medium" and "low". Slightly more than One-tenth (13.8%) of the cases were classified into the category "No information available" in relation to this question.

There are some cases, like **Green Homes,** which **do not contest** the current energy system. This may be due to the fact that the case is promoted by a body dependent on the Government of the country.

Low in terms of contesting the current system means that "citizen involvement/action is essentially system-confirming, which means that citizens generally go along with the basic structures of the existing system", like in the case of **Evaluation of**

Contesting the current energy system

Low — 24.0% | 12.0% | 12.0% | 52.0% — High

n = 25

Energy Behavioural Change Programmes (BEHAVE), in which "the decision to invest in changing citizens' energy related behaviour starts at the policy making level. A government develops long term priorities and goals for energy conservation and energy efficiency and, since energy consumption is distributed across society, no policies for energy conservation or efficiency can ignore the need to involve the decisionmaker – the individual consumer" or **Light at Home Oaxaca**
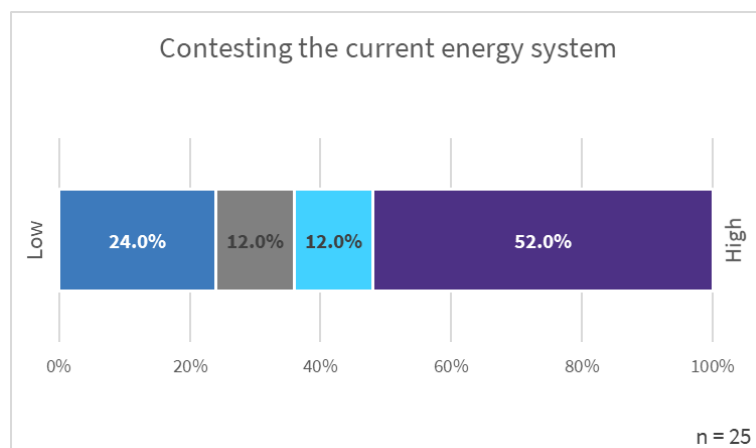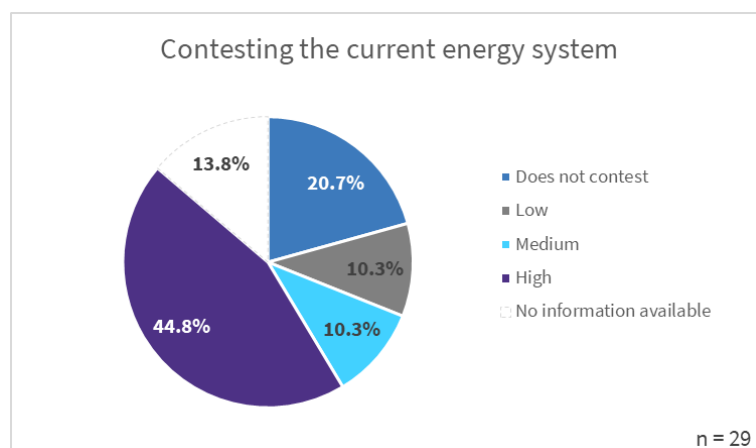
because, as the case researcher observed, in this case "citizens do involve in changing the system out of necessity as they do not have access to more 'conventional' energy".

Medium means that "some system-contesting aspects are part of the process, yet are not appropriated by citizens or considered a full part of their involvement" like in the case of **Energy Bank Association [Associació Banc d'Energia],** because "they believe that there cannot be families with problems with basic electricity or heating supply problems because it has impacts on their health and opportunities for social equality, and they act to promote savings and efficiency for solidarity purposes for a social benefit, in addition to the economic and environmental reasons, all of which are important. They assume that all can benefit from it but there is not a complete contestation of the Spanish system".

High means that "citizens are committed to deeply renewing and restructuring the system toward a more democratic and sustainable one; additionally, narratives, action, and proposals are part of the contestation of the dominant system, resulting in critique and protest against energy or mobility policies, or support for more holistic sustainability policies and action, as well as forms of engagement that aim at making fundamental change (e.g., achieving autonomy)" like in the case of **La Borda. Housing cooperative in transfer of use,** which fights against individualism and capitalism, betting on sustainable and fair development. The first project of La Borda Housing Cooperative, aim to "meet the need to access socially, economically, and environmentally sustainable living spaces, while bypassing the conventional real estate market".

4.10 A more detailed look at contesting the current energy system: mapping equity/justice, environmental sustainability and citizen power

In this chapter we describe the first step of the analysis aimed at obtaining a fuller picture of to what extent the ENCIs mapped in Spain contest the current energy system. We selected those questions related to environmental sustainability (including the recognition of the carbon limit), equity/justice, and citizen power. For the analysis presented here, we attempt to classify the ENCIs according to different coordinate systems, each time selecting two of these aspects to see how they contest the current energy system and compare them.

The purpose of this part of the report is to increase understanding of the arrangement of each category (e.g., how many and what kind of cases received high ratings from both an environmental sustainability and a system-contesting point of view, or for observing the carbon limit *and* promoting equity/justice), and to prepare the ground for further detailed typological analyses in the future. The quadrants in the graphs also illustrate whether the cases belong to the "high" or "medium" group, or to the "low" or "not considered" group, according to current criteria.

Cases that were mapped but were not classified by case researchers into any of the explicitly defined categories (i.e., that were classified as "other" or "no information available") have not been included in this analysis.

gründependent
Institute

UNIVERSIDADE
DA CORUÑA

Environmental sustainability & contesting the current energy system

It can be clearly seen that of the majority of the Spanish cases that were mapped (a total of 29 cases) that have the appropriate information for our analysis, 22 of them may be classified into the "medium"- "high" group according to both criteria (environmental sustainability and contesting the current energy system). Within this group, most of the cases are classified as "high" from an environmental point of view (14 cases), of which 11 are defined as "high" and 3 "medium" from the system-contesting perspective.

Note that environmental sustainability is clearly a factor of medium-high relevance (22 cases), with only 3 cases placed in the "no consider" or "low" value. However, there seems to be more variability in terms of their protest the current energy system, where while there are numerous cases in the medium-high values (16), there are also some cases in not contest-low (6).

In the figure below, on the right-hand side, we have included concrete case examples as an illustration.[4]

Environmental sustainability	Not contest	Low	Medium	High
High	1	1	3	11
Medium	3	1		2
Low	2			
Not consider		1		

Contesting the current energy system

Environmental sustainability	Not contest	Low	Medium	High
High	Energy with a consciousness	BEHAVE	Granada in Transition Solar Garden [FoH Spain]	TRIBE EOLPOP Energy Audits [FoH Spain] (+ 2 others)
Medium	EURONET 50/50 Green Homes Limitless sun, Limitless energy	USmartConsumer		NoMorePowerCuts Platform Valley of Sensations
Low	Solar Pool Campaigns 56			
Not consider		Light at Home Oaxaca		

Contesting the current energy system

---

[4] Please refer to the Annex for a brief description of the cases.

grEEndependent Institute

UNIVERSIDADE DA CORUÑA

## Carbon limits & Contesting the current energy system

If environmental sustainability is replaced with recognition of carbon limits, and the graph is drawn again (with the other variant remaining as contesting the current energy system), we identify 23 cases from the whole set (29). It remains true that the majority of Spanish cases belong to the "medium"-"high" group from both perspectives (9), although there is also a varied distribution of cases, with many of them falling in the lower right quadrant of the graph, i.e. in the "medium"-"high" category in terms of challenging the current energy system, but with little or no recognition of carbon limits (7). This raises questions, for example, about how recognition of the carbon cap relates to environmental sustainability, or whether such recognition is in fact considered part of environmental sustainability. Ultimately, how do the cases challenge the energy system, and can they really do so if they do not clearly and explicitly observe the carbon limit?

We have again included some cases for each quadrant and sub-quadrant of the graph to illustrate which ENCI cases were placed where in terms of the two differentiating factors.

Carbon limit	Not contest	Low	Medium	High
High			2	5
Medium	2			2
Low	2	3	1	4
No recognition	2			2

Contesting the current energy system

Carbon limit	Not contest	Low	Medium	High
High			Energy Bank Association Solar Garden [FoH Spain]	EOLPOP Energy Audits and Community Energy [FoH Spain] (+ 2 others)
Medium	EURONET 50/50 Green Homes			GoiEner Som Energía
Low	Solar Pool Campaigns The 8th Life Ecovillage	BEHAVE Light at Home Oaxaca (+ 1 other)	Granada in transition	Valley of Sensations 100% Sustainable Madrid (+ 2 others)
No recognition	Energy with a consciousness Limitless sun, Limitless energy			NoMorePowerCuts Platform Noctisolar Ecolight

Contesting the current energy system

grindependent Institute

UNIVERSIDADE DA CORUÑA

Equity and justice & Contesting the current energy system

A total of 22 cases out of 29 can be placed on the graph in terms of responses to the question about equity and justice *and* contesting the current energy system. We can clearly see again that the "medium"-"high" quadrant for both aspects is the most populated one (16 cases). However, it is also noted that several cases (5) do not take into consideration the justice and equity component and do not offer (or offer in a very subtle way) a response to the current energy system.

Equity & Justice	Not contest	Low	Medium	High
High		1		9
Medium			3	4
Low				
Not consider	4	1		

Contesting the current energy system

Equity & Justice	Not contest	Low	Medium	High
High	Light at Home Oaxaca			GoiEner Som Energía Smarter Together (+ 6 others)
Medium			Granada in Transition Energy Bank Association (+ 1 other)	TRIBE EOLPOP (+ 2 others)
Low				
Not consider	Energy with a consciousness Euronet 50/50 (+ 2 other)	USmar Together		

Contesting the current energy system

Citizen power/control & Contesting the current energy system

If the two variables that are compared are citizen power *and* contesting the energy system, it is visible that the same patterns appear again. With a total of 21 cases (out of 29) having appropriate data for this analysis (i.e. are not defined by the "other" or "no information" categories), the most crowded group is the "medium"-"high" one in both regards (12 cases). It is interesting to note that, within this group, the majority (8 cases) are in the highest degree of citizen control/power and responsiveness to the current energy system. A few other cases are included in the other categories represented in the other quadrants, but in no case do they exceed 4 cases.

Citizen power/control	Not contest	Low	Medium	High
High	1		1	8
Medium	2	1		3
Low		1	2	1
Not consider	1			

Contesting the current energy system

Citizen power/control	Not contest	Low	Medium	High
High	Solar Pool Campaigns		Granada in Transition	NoMorePowerCuts Platform Valley of Sensations (+ 6 others)
Medium	Energy with a consciousness Euronet 50/50	BEHAVE		Energy Audits Green Homes (+ 1 other)
Low		USmart Together	Energy Bank Association Solar Garden [FoH Spain]	EOLPOP
Not consider	El Hierro Wind Farm			

Contesting the current energy system

Equity and justice & Environmental sustainability

In this section, and the sections below, we investigate how the variables we looked at in comparison with contesting the energy system are related to one another.

First, we compared equity and justice and environmental sustainability, and located the 23 cases with appropriate data on the graph. Here again, we can see the same pattern that was observed in the Spanish cases: the "medium"-"high" or top-right quadrant of the graph is the most populated one. Of the 17 cases classified here, 9 are positioned in the "high"-"high" category, among them cases that adopt a more holistic approach, such as Energy Audits [Friends of the Earth Spain] and GoiEner.

Graph 1 (counts)

	Not consider	Low	Medium	High
High	1		1	9
Medium			1	6
Low				
Not consider		2	2	1

Equity & Justice (vertical) / *Environmental sustainability* (horizontal)

Graph 2 (case names)

	Not consider	Low	Medium	High
High	Light at Home Oaxaca		NoMorePowerCuts Platform	Energy Audits [FoH Spain] GoiEner (+ 7 others)
Medium			Valley of Sensations	TRIBE Energy Bank Association (+ 4 others)
Low				
Not consider		Solar Pool Campaigns The 8th Life Ecovillage	Solar Pool Campaigns Euronet 50/50	Energy with a consciousness

Equity & Justice (vertical) / *Environmental sustainability* (horizontal)

Equity and justice & Carbon limits

If environmental sustainability is replaced by carbon limits as the second variable in the comparison with equity and justice, the distribution of cases across the four quadrants of the graph becomes more varied. Of the 23 cases that could be analysed in relation to these two aspects, considering fairness and justice, most cases are in the top two quadrants of the coordinate system, where fairness and justice are mostly defined between "medium"-"high" (with 4 cases where there is no recognition). However, the distribution is much more varied when we look at whether cases recognise the carbon limit, with an almost equal number of cases located in the "medium"-"high" quadrants (10 cases) and in the "no recognition"-"low" quadrants (8).

Equity & Justice	No recognition	Low	Medium	High
High	2	3	3	3
Medium		3		4
Low				
Not consider	1	3	1	

Carbon limit

Equity & Justice	No recognition	Low	Medium	High
High	NoMorePowerCuts Platform, Noctisolar Ecolight	Light at Home Oaxaca 100% Sustainable Madrid (+ 1 other)	GoiEner Som Energía (+ 1 other)	Energy Audits, Community Energy and Free the Sun [FoH Spain]
Medium		Valley of Sensations Ecotown the Flower of Life (+ 1 other)		Energy Bank Association Solar Garden [FoH Spain] (+ 2 others)
Low				
Not consider	Energy with a consciousness	Solar Pool Campaigns USmartConsumer (+ 1 other)	EURONET 50/50	

Carbon limit

Equity and justice & Citizen power/control

The distribution of cases across the coordinate system is less diverse if equity and justice and citizen power/control are the two variables on the two axes. The most populated quadrant is the "medium"-"high" one from the point of view of both aspects. Cases are distributed rather equally among the "high" option in both variables. In this analysis, 21 cases out of the 29 could be considered for classification (i.e. were associated with relevant data).

Also note that in 5 cases the variable energy and justices is not considered, but in 3 of those cases, the citizen control/power is "medium-high"

Equity & Justice (vertical) vs Citizen power/control (horizontal) — counts

Equity & Justice	No recognition	Low	Medium	High
High			4	5
Medium		3		4
Low				
Not consider	1	1	2	1

Equity & Justice (vertical) vs Citizen power/control (horizontal) — cases

Equity & Justice	No recognition	Low	Medium	High
High			Energy Audits and Community Energy [FoH Spain] (+ 2 other)	GoiEner Som Energía (+ 3 other)
Medium		Energy Bank Association EOLPOP (+ 1 other)		TRIBE Valley of Sensations (+ 2 other)
Low				
Not consider	Noctisolar Ecolight	USmart Consumer	Energy with a consciousness EURONET 50/50	Solar Pool Campaigns

Environmental sustainability & Carbon limits

Finally, if we compare the two green aspects, environmental sustainability and carbon limits, which we would assume show very strong convergence (as referred to above), some diversity is still identifiable. The majority of cases – 12 out of the 29 cases, that represent the totality of them, that could be classified here – are located in the "medium"-"high" category regarding both aspects – i.e. in the top-right quadrant of the coordinate system, with 7 cases in the "high"-"high" sub-quadrant. These 7 cases are the ones where environmental sustainability clearly includes an explicit recognition of carbon limits with defined reduction targets. The second most populated quadrant is the one where environmental sustainability remains "medium"-"high", while from the point of view of recognising the carbon limit, cases are categorised as no or low recognition, with 8 cases in this group.

Left table:

Environmental sustainability	No recognition	Low	Medium	High
High	3	5	3	7
Medium	3	2	2	
Low	1	2		
Not consider		1		

Carbon limit

Right table:

Environmental sustainability	No recognition	Low	Medium	High
High	Energy with a consciousness Noctisolar Ecolight (+ 1 other)	BEHAVE La borda (Housing cooperative in transfer of use) (+ 3 other)	Smarter Together Som Energía (+ 1 other)	Energy Bank Association EOLPOP (+ 4 other)
Medium	NoMorePowerCuts Platform Couso's Project (+ 1 other)	Valley of Sensations Solar Pool Campaigns	EURONET 50/50 Green Homes	
Low	The 8th Life Ecovillage Project	Solar Pool Campaigns Noctisolar Ecolighy		
Not consider		Light at Home Oaxaca		

Carbon limit

grEEndependent Institute

UNIVERSIDADE DA CORUÑA

Brief summary

As the EnergyPROSPECTS team defined energy citizenship as "*forms of civic involvement that pertain to the development of a more sustainable and democratic energy system. Beyond its manifest forms, ENCI also comprises various latent forms: it is an ideal that can be lived up to and realised to varying degrees, according to different framework conditions and states of empowerment*" (Pel et al., 2021:64), it is of specific interest to the research team to study how cases of ENCI contest current energy systems, and whether the forms of contestation that are observed indeed help move society towards creating a more sustainable and democratic energy system. In Chapter 4.10 we undertook the first steps in the analysis to be able to respond to this question and looked at different variables corresponding to different aspects of sustainability to obtain a preliminary overview and inform future analysis in the project.

The analysis carried out clearly shows that environmental sustainability is a major concern for the selected Spanish cases, and the latter largely correspond to those who also contest the current energy system. What requires further research, however, is the situation with the assessment of the ecological limit of carbon emissions to the atmosphere, as although it could be argued that the latter is an important aspect of environmental sustainability, our research showed that this factor is correlated differently with the contestation of the energy system, at least for the Spanish ENCIs. As the dataset is rather small, this issue will be investigated in more detail for the whole database, which consists of 596 cases.

There is also a high level of correspondence between cases classified as "medium" or "high" in terms of citizen power/control and equity/justice (with some exceptions that do not consider justice/equity, despite considering citizen power/control), and "medium" and "high" for the contestation of the current energy system, both in relation to citizen power/control and to equity/justice.

We also started to investigate the relationship between the different variables, both within (i.e., looking at environmental sustainability versus carbon cap recognition, and citizen power/control versus equity/justice), and between aspects of sustainability. Some interesting relationships have been found that place most cases at the top (high - medium) in terms of sustainability, but do not make clear the Spanish position on carbon cap (with a considerable number of cases along the scale from no recognition to high recognition). Therefore, at this early stage, the most important conclusion that can be drawn is that these relationships need to be

further explored, both through a more detailed examination of the cases themselves and through analysis of the full database.

Finally, it is interesting to note that no Spanish cases were classified as "high" in relation to all aspects investigated in this chapter. Even so, it is possible to highlight cases such as Energy Audit, Free The Sun and Community Energy, the three initiatives from Friends of the Earth Spain and considered transformative social movements in which high values were found in all categories, except in citizen control, where they were situated in the category "medium". For those that did obtain a "high" ranking in terms of citizen power/control, it is possible to highlight four cases that also had a "high" value in the other variables studied, except for the explicit recognition of carbon limits, where they were placed at a "low" level for their implicit recognition (100% Sustainable Madrid and La Borda. Housing cooperative in transfer of use) or at a "medium" level for their explicit recognition without mention or definition of specific objectives linked to it (Som Energía and GoiEner). The first two were classified as reforming and transformative social movements, respectively, while the second two as reforming and collective, citizenship-based and hybrid cases. It is noteworthy that all of these are collective cases, and 5 out the 7 mentioned are focused on direct energy production and/or consumption, while the other 2 have a more holistic focus.

References

Debourdeau, A., Schäfer, M., Pel, B, Kemp, R., Vadovics, E., Dumitru, A. (2021) Conceptual typology. EnergyPROSPECTS Deliverable 2.2, European Commission Grant Agreement No. 101022492.

Pel, B., Debourdeau, A., Kemp, R., Dumitru, A., Schäfer, M., Vadovics, E., Fahy, F., Fransolet, A. Pellerin-Carlin, T. (2021) Conceptual framework energy citizenship. EnergyPROSPECTS Deliverable 2.1, European Commission Grant Agreement No. 101022492.

Radtke J., Drewing E., Eichenauer E., Holstenkamp L., Kamlage J.H., Mey F., Warode J., Wegener J. (2020) Chapter 4 - Energy transition and civic engagement. The Role of Public Participation in Energy Transitions. Academic Press: pp. 81-91.

Vadovics, E., Vadovics, K., Zsemberovszky, L., Asenova, D., Damianova, Z., Hajdinjak, M., Thalberg, K., Pellerin-Carlin, T. , Fahy, F., Debourdeau, A., Schäfer, M., Pel, B., Kemp, R., Markantoni, M. (2022) Methodology for meta-analysis of energy citizenship. EnergyPROSPECTS Deliverable 3.1, European Commission Grant Agreement No. 101022492.

grEUndependent Institute

UNIVERSIDADE DA CORUÑA

Annex: List of the Spanish cases

Title of the case in English *(original)*	Brief overview	Webpage / Facebook
100% Sustainable Madrid (Madrid 100% Sostenible)	A citizen-led movement supported by Alianza por el Clima (400 organizations). Among 11 other goals, Madrid should 1) Have municipal electric power contracts 100% renewable source guaranteed, 2) implement energy efficiency programs in schools, and 3) Establish fiscal measures to promote energy efficiency and renewable energy.	alianza-clima.blogspot.com/2017/02/madrid-100-sostenible.html;
8th Life EcoVillage Project (8th Life EcoVillage Project)	EcoVillage project in the Canary Islands started by NPO/NGO Asociación Gaia Tasiri to repopulate a rural farmstead and establish a community to do more effective work in facilitating the global and local transition, and also researching in action, organized around ecology and sustainability. They are a self-titled Transition Town (post-petroleum and off-grid communities).	8thlife.org/; 8thlife.org/blog/
Couso´s proyect (Proyecto o Couso)	An integrated and open community where everyone operates under the principle of "Leave what you can; take what you need." The self-sufficient ecovillage has many permanent residents and also hosts pilgrims making the Camino de Santiago.	proyectocouso.org/; facebook.com/proyectocouso/
Ecotown The Flower of Life (Ecovila La Flor de la Vida)	The transition town in Girona (Spain) created a road map for a sustainable future of the city by proposing a number of changes in the areas of energy production, health, education, economy, and agriculture. The Sustainable Ecovila La Flor de la Vida is an innovative project of sustainable urban growth, based on a natural geometric pattern. The concept of this sustainable Ecovila allows the development of an economy that respects human beings, where the project itself marks a new paradigm of economic efficiency. This geometric pattern is "The Flower of Life". It is an ancient symbol that has a perfect shape in proportion and harmony. This harmonic proportion is what makes this Project a new reference for future sustainable garden city design constructions. In this way, the Sustainable Ecovila Project unites respect for the Earth and the Environment, Energy Efficiency, Architectural Beauty and Sustainable Economy.	ecovilaflordelavida.blogspot.com/; facebook.com/pages/Ecovila-La-Flor-de-la-Vida/443453219032406
El Hierro wind farm (Parque Eólico de El Hierro)	Although other islands around the world are powered by solar or wind energy, El Hierro is the first to secure a constant supply of electricity by combining wind and water power and with no connection to any outside electricity network	goronadelviento.es
ENERGY AUDITS: FRIENDS OF THE EARTH SPAIN	The project encourages the improvement of energy efficiency and savings in residential homes (thermal and electric, e.g. possible heat losses, characteristics of the domestic	tierra.org/auditorias-energeticas/

('AUDITORÍAS ENERGÉTICAS: AMIGOS DE LA TIERRA ESPAÑA')	electricity) across Galicia, Ibiza, La Rioja, Mallorca, and Madrid. The results of the audits will be used for a study that will help put these types of projects into effect across the population.	
Energy Bank Association (Asociación Banc d'Energia)	The energy bank is a legally constituted association that promotes energy saving and efficiency for the benefit of those in a situation of energy vulnerability. This is done through pedagogy and transformative solidarity.	bancdenergia.org/; facebook.com/bancdenergia
Energy with a consciousness (Energía con conciencia)	Energía con conciencia is an educational project of Fundación Repsol to make young people aware of the importance of responsible use of energy and the value of existing resources. The project consists of a competition in which each edition several educational centers compete in which the students make proposals to make a more responsible use of energy resources in their educational centers.	fundacionrepsol.com/es/noticias/ ganadores-del-vi-campeonato-energia-con-conciencia
EOLPOP – Living from the air of the sky ('EOLPOP – Viure de l'aire del cel)	To celebrate the 25th anniversary of the public opening of the first modern wind turbine, connected to the grid in Catalonia, the local branch of Eurosolar (European Association for Renewable Energies) launched a pioneering initiative: Living from the air of the sky. It involves the installation of a wind turbine with shared ownership among citizens who voluntarily provide the money needed to realize the project. The site chosen is within the municipality of Pujalt (Anoia, Catalunya) for the good wind conditions, easy access, and accessibility to the medium voltage network.	viuredelaire.cat/es/; facebook.com/viuredelaire
EURONET 50/50	Aims to mobilize energy savings through the implementation of the 50/50 methodology in 500 schools and nearly 50 other public buildings from 13 EU countries (114 from Spain specifically). The 9-step methodology increases energy awareness of the building users and actively involves them in energy–saving actions. The schoolchildren learn about how to be more efficient with energy and the importance of doing so, and bring this information and influence back home to their families for a greater impact.	euronet50-50max.eu)
Evaluation of Energy Behavioural Change Programmes (BEHAVE) ('Evaluation of Energy Behavioural Change Programmes (BEHAVE))	BEHAVE aimed to enhance the performance of energy-related behaviour change programmes by adopting a rigorously scientific approach to evaluating a wide range of recent examples, and by developing an effective model for design, implementation, and evaluation of this type of programmes for use by policy makers, programme designers/managers, and consumer organisations.	cres.gr/behave/pdf/ BEHAVE_factsheet%20July_2009.pdf

grÜndependent Institute

UNIVERSIDADE DA CORUÑA

FRIENDS OF THE EARTH SPAIN: COMMUNITARY ENERGY ('AMIGOS DE LA TIERRA ESPAÑA: ENERGÍA COMUNITARIA')	An association without financial motives that seeks to create a local and global change towards a more sustainable society. Based in Madrid, partners in 70 counties (global perspective). Promotes community renewable energy generation projects (PV and wind), putting it in the hands of the citizen.	tierra.org/; facebook.com/AmigosTierra
FRIENDS OF THE EARTH SPAIN: FREE THE SUN (AMIGOS DE LA TIERRA ESPAÑA: LIBERAR AL SOL)	Provides an easy "10 step guide" to empower citizens to produce and consume their own energy in a collective form, as well as to reduce their consumption through energy savings and efficiency. Teaches consumers that they can transform the energy sector	tierra.org/; facebook.com/AmigosTierra/
GoiEner	GoiEner believes that electricity is now a need as basic as food, and wants consumers to reclaim their energy sovereignty and make them aware of its importance.	goiener.com/; facebook.com/goiener
Granada in transition (Granada en transición (GET))	Project initiated by a group of people from Granada (Spain) to create a portal for support and dissemination of all existing initiatives that face current challenges such as climate change, the economic and social crisis, inequalities and dependence on fossil fuels and their derivatives. To do this, they have established links of mutual support and participation with other related groups. They carry out online courses and some training projects.	granadaentransicion.wordpress.com/; facebook.com/GranadaEnTransicion/
Green Homes ("Hogares Verdes")	An educational program born in Segovia from the Centro Nacional de Educación Ambiental (CENEAM), now in 12 Spanish communities directed towards families concerned about their environmental impact and their daily decisions and habits. The program seeks to help them by promoting autonomy in the domestic consumption of water and energy and helping them make more ethical purchases	miteco.gob.es/es/ceneam/programas-de-educacion-ambiental/hogares-verdes/default.aspx; facebook.com/HogaresVerdes/
Green House (Casita Verde)	Basically, they are an experiential learning center, designed to encourage innovative and sustainable lifestyle techniques, which are within the reach of each of us.	casitaverde.com/; facebook.com/CasitaVerdeIbiza/
La borda. Housing cooperative in transfer of use (La Borda. Cooperativa d'habitatge en cessió d'ús)	Housing cooperative of assignment of use, under a non-speculative model. The members belonging to the cooperative have the ability to decide on juridical, legal and economic aspects and on the housing infrastructure itself. One of its main objectives is to give priority to the environmental aspect, economically achievable through homes with a passive design or low energy consumption, with local, decentralized and self-managed generation of renewable energy. Less total energy and materials consumed by sharing major appliances and amenities.	laborda.coop/es/; facebook.com/labordacoop

Light at home Oaxaca (Luz en Casa Oaxaca)	The Spanish ACCIONA Microenergia foundation brought and adapted its rural electrification program "Luz en Casa" to the Mexican situation to give a solution to the Oaxaca (Mexican state) communities of population less than 100, where the electricity public utility (Comision Federal de Electricidad-CFE) had no plans of electrification.	sites.google.com/a/accioname.org/acciona-microenergia-mexico/programa-luz-en-casa-oaxaca;
Limitless sun, limitless energy (Sol sin límites, energía sin límites)	An environmental education program for schools in 16 provinces about the use of solar energy as a clean energy source. Created by la Fundación Oxígeno, with the financial support of la Obra Social de Caja Madrid.	
NO MORE POWER CUTS PLATFORM (PLATAFORMA NO MÁS CORTES DE LUZ)	The #NoMásCortesDeLuz campaign was created to denounce power cuts to families without resources and the abusive tariffs of the electricity sector.	nomascortesdeluz.org/; facebook.com/hashtag/nom%C3%A1scortesdeluz
Noctisolar Ecolight: light to hope (Noctisolar Ecolight: luz a la esperanza)	Project started in Spain in 1999 with the collaboration of a company from the T-SOL sector and Fundación Tierra, with the objectives of: -Provide a response with low-cost, high-efficiency solar technology to the problem of domestic lighting in areas without electrification. More than 1,000 million do not have access to electricity for lighting, having to use systems such as liquid fuels (kerosene, oil, etc.) that create air quality problems inside homes. - Design a portable solar lamp to withstand the harshest environmental conditions providing the maximum amount of light possible. - Create a product demanded by cooperation NGOs given the lack of high-performance solar lighting systems. It ended in 2004 due to the bankruptcy of the T-SOL company and the lack of projection and economic resources.	fundaciontierra.es/es/actividades/economia-solar/noctisolar-ecolight-luz-la-esperanza-2004;
SMARTER TOGETHER	SMARTER TOGETHER's overarching vision is to find the right balance between smart technologies and organizational/ governance dimensions in order to deliver smart and inclusive solutions and to improve citizen's quality of life. The "data management platform & smart services" domain is central to the project, connecting with all other areas: district heating and renewables, e-mobility, and holistic refurbishment.	smarter-together.eu/; facebook.com/SmarterTogetherProject
SOLAR GARDEN: FRIENDS OF THE EARTH SPAIN ('HUERTA SOLAR: AMIGOS DE LA TIERRA ESPAÑA')	Offers people the chance to become co-owner of a photovoltaic installation on a roof by means of one or more financial holdings. The 10 Kw plant is in Leganés (Madrid). The electricity generated is supplied to buildings in the area through the grid to avoid energy losses.	huertasolaramigosdelatierra.wordpress.com/
SOLAR POOLS CAMPAIGN (CAMPAÑA PISCINAS SOLARES)	Water purified through electricity produced by solar energy	zencer.es/servicios/piscinas-solares/

gründependent Institute

UNIVERSIDADE DA CORUÑA

Som Energia	Som Energia is a non-profit green energy consumer cooperative. The main activities are the marketing and production of energy from renewable sources. They are committed to driving a change in the current energy model to achieve a 100% renewable model.	somenergia.coop/; Facebook: facebook.com/somenergia
THE ASOCIATION 'VALLE DE SENSACIONES" (ASOCIACIÓN VALLE DE LAS SENSACIONES)	A prototype of an Ecovillage Laboratory, whose focus is an experiential integration of humans into nature: from "Living creativity in sensual contact with nature" towards "Providing inspiration and knowledge for setting up creative communal and sustainable projects" and now to "Eco village laboratory for the communal development and mediation of sustainable living concepts". Founded by a couple being fed up with mainstream unsustainable practices.	sensaciones.de/
TRIBE : TRaIning Behaviours towards Energy efficiency: Play it! ('TRIBE : TRaIning Behaviours towards Energy efficiency: Play it!)	TRIBE project develop a new energy efficiency videogame, running with real data from public buildings. It provide a "controlled training regime on energy efficiency, administered in a very motivational way". The game include the different relevant aspects for improving the energy efficiency in buildings.	tribe-h2020.eu/
USmartConsumer	The project, through actions directed both to consumers and energy operators, aims to promote the correct use of smart meters by consumers and the development of new services related to smart meter by operators energy	