Università degli Studi di Milano

ECONOMIC SOCIOLOGY AND LABOUR STUDIES - 34th Cohort

Dipartimento di Scienze Sociali e Politiche

Democracy and justice in collective action initiatives in the energy field

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Acknowledgment

This Ph.D. has been realized at a very particular time in my life. During these three years an half, I lost my father, my mother survived her second cancer, and at the same time, I gave birth to my son: Mathis. Therefore, first, I would dedicate one part of this work to my father, which taught me what perseverance means, to my mother, which showed me how to be resilient, and Mathis for the strength that motherhood could provide.

Then, I want to thank my husband for this support during these years, being a former high-level athlete and also a talented businessman his advice and strength have been crucial to manage the so many challenges I have to meet during this work. I want to thank my friends, especially Denise, Sonia, Yvana, Marie-Claire, and Marylou always being available and supportive to hear me and help me when I was an overburdened mum. I also want to thank my dear friend Nuria for being so helpful and comprehensive as also my lovely brother and his wife Valentine for their support and their help.

Then the team of ènostra and Ecopower and Ecopower have been fantastic helping me in my research. In particular, I want to thank Arno Foulon from Energie Partagée, who provided my first Data, Sara Capuzzo, who allowed me to lead the study for the project Asset, and Camille Meuss from Ecopower, who traduced my survey in Dutch. During this work, Sara Golessi, manager for the European project at ènostra, has been one of the most crucial reference figures for me, always available and advising me. Thanks to the doctor Thomas Bauwens to follow my work since the beginning of my Ph.D. and help me to gain in experiences.

My Ph.D. colleges have been also fantastic, and I could not have imagined meeting such lovely people. Lorena for hearing my pregnancy stories, Lucia to understand better women's issues in Italy, Shyaam for his help and make me laugh, Eleonora for always being ready to help me…Especially, I would never have achieved this work without my colleague, who becomes a dear friend during these years, Elena De Gioannis, who spent hours explaining statistics and checking my work. They all confirm what my Ph.D. tries to show that kindness and collaboration can make the world better.

I also thank the University Statale of Milan for this support.

Last but not least, maybe the best support has been my dog: Arturo, who has been maybe during these years the most supportive, lagging on my feet when I was writing this Ph.D., and the best companion during our daily walking on Lake Como, full of inspiration for this work.

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Chapter 1: INTRODUCTION

1. With the deployment of renewable energy technologies, the energy market has become more polycentric, characterized by the cohabitation of large- and small-scale installations (Ostrom 2010; Bauwens 2017; Natalia Magnani, Dario Minervini, and Ivano Scotti 2018). This configuration allows for the presence of new actors, as energy communities, fostering the deployment of renewable energy and thus representing a new tool to fight against climate change. This thesis investigates the role of one of these new players: energy communities. Energy communities represent a form of collective management based on the principle of "*one people, one voice*", where citizens are the direct owners of energy, contrasting thus with the previous energetic model based on fossil-fuel energy and big companies. Furthermore, energy communities also intensely care about social issues and inclusivity within their initiatives (Rescoop 2020). Therefore, they imply political and social shifts and are attached to the concepts of energy democracy and justice bringing all citizens directly into energy transition (Jenkins 2018; Martiskainen, Heiskanen, and Speciale 2018).

2. This research inquiry analyses the reality of these initiatives, investigating whether possible gaps emerge between the citizen and the energy communities' characteristics for potential inclusiveness at a time when part of the literature tends to raise attention towards the fact that energy communities could still be far from bringing more energy democracy and justice in this field (Fraune 2015; Hanke, Guyet, and Feenstra 2021; Hanke and Lowitzsch 2020; Van Veelen 2018). Another point to underline is that thanks to adopting a comparative perspective, this research also looks to identify how some traditional determinants of collective action initiatives as size but also socio territorial context, can impact the capacity of these initiatives to bring more energy democracy and justice (Cleaver and De Koning 2015a; Bridge et al. 2013; Magnani and Carrosio 2021).

3. The introduction is organized as follows. The next section illustrates the current literature regarding energy communities, democracy, and justice and underlines the current gaps. Section two presents the theoretical framework used in this thesis. Finally, the next section presents the research questions and the structure of this thesis.

1.1. Literature review: the potential of energy communities to build a new energy market

1.1.1. Energy communities a new actor of energy market

4. After Chernobyl and the warnings in the report Meadows against the depletion of natural resources and severe environmental pollution, the idea that citizens could produce and consume their energy coming from renewable resources, as prosumer, emerged. Simultaneously, the European Union began to adopt the first measures to orient the implementation of a new energy market toward more sustainability: the first step was undertaken in 1986 to include renewable energies[1] in its energetical politic[2]. But it actually was not until the 1990s and the beginning of the 2000s that renewable energies would be seriously considered as a road to follow to produce and consume energy: for the first time, concrete objectives were fixed to reach for renewable energies production through the directive 96/92/CE and the first initiatives of energy communities appeared – e.g., in Belgium. Nevertheless, for almost fifty years, despite the flourishment of numerous citizens' initiatives (Seyfang, Park, and Smith 2013), public policies did not consider energy communities and their potential.

5. Finally, in 2016, a set of eight legislative acts known as the Clean Energy Package was adopted on energy to promote renewable energies technologies and the social mobilization on energetic issues, thus initiating to h the role of energy communities. With recently reviewed objectives for 2030, such as increasing the current target to a minimum of 32% share of renewable energy consumption and 32.5% improvement in energy efficiency while also cutting emissions of greenhouse gas by 40% when compared to those in the 1990s (EU 2020), all resources are needed to reach these goals. In particular, energy communities have attracted the attention of public authorities, as they already gather 3500 initiatives for about 2 million citizens participating in them (Wierling et al. 2018). In this light, a new directive officially recognizing for the first time the existence of energy communities and their role in fostering the energy transition was implemented in 2018 (European Parliament 2018), with the aim of

[1] Renewable energies are defined as: solar radiation and all of its biospheric transformations (e.g. wind, moving water or biomass), and geothermal heat. (Sovacool and Dworkin 2014)

[2] European Council, (1986). *Council Resolution of 16 September 1986 concerning new Community energy policy objectives for 1995 and convergence of the policies of the Member States*, OJ C 241, 25 September 1986, pp. 1-3

helping their development and reinforcing the role of civil society as a key actor in the European Union (Roberts 2020).

6. A fundamental change was introduced in 2018 with the directive 2018/2001, recognizing the role of energy communities and asking member states to foster and encourage their development with the transcription of the directive in their national legislation before 2022 (European Parliament 2018). The European Road map for 2050 shows that the energy market will be profoundly and structurally transformed. The EU is committed to reducing greenhouse gas emissions to 80–95% below the 1990s levels by 2050; moreover, the aim is to achieve a share of renewable energy sources (RES) of at least 55% in gross final energy consumption, while the share of RES in electricity consumption should reach 64% in a high energy efficiency scenario and 97% in a very high energy efficiency scenario (European Commission 2012). Again, in this view, energy communities and citizens managing their energy collectively will be key actors in this new market community (European Union 2019), as in 2050 energy communities are expected to reach up to 37% of European citizens (Kampman, Blommerde, and Afman 2016).

1.1.2. Some examples

7. Since energy communities are still underknown by a large part of the population, especially in the Southern Europe, where these initiatives are less developed, it is pertinent to give concrete examples of these models. Another reason is also that energy communities could take various forms and are still under-conceptualized. Therefore, as advised by some colleges, it was important to illustrate at the beginning of this thesis what could be an energy community. The choice of this case has been selected as a "symbolic" example in the energy community's landscape in France, my native country: the first energy citizen park in France which is very famous in the European Union and the city of Güssing also very know in the field.

8. One of the first examples of citizens' wind energy projects is "Begawatts", which was created in France in 2002. This project presented a budget of 12,000,000€, of which 1,800,000€ were brought by citizens and today the electricity produced by this wind farm covers the needs of the city hall and 6000 households. This first project has been significant since it has led to the creation of an emulsion around this issue and a strong network such as Eoliennes in Pays de Velaine, where more than 200 projects have been studied to replicate the model (https://energie-partagee.org/ ,Accessed: 03/05/2022).

9. Another interesting case study is Güssing, in Austria, where the community has achieved a 90% decrease in its CO2 emission. This impulse came from the municipality in the late 1990s; however, the technical solutions did not come from the market but from a group of citizens who invented Modul R, which is a mini boiler to use the local wood instead of fossil energies. A part of the profits is used for the local sustainability (biodiversity of the forest) and to boost the social link by working with reintegration companies and creating local jobs, such as 60 new renewable energy companies which offer 1,500 new jobs. In France, this idea has also been adopted by citizens in Yssinguaux[3].

Boiler Modul R

Begawatts

1.1.3. Questioning democracy and justice in energy communities

10. Energy communities imply a strong reconfiguration of energy communities not only at the technical level but more deeply imply a socio-political shift, with energy belonging directly to citizens, characterized as prosumer (Ford, Stephenson, and Whitaker 2016; Campos and Marín-González 2020). In particular, over the last year, energy communities have also been strongly addressed for their democratic and inclusive capacity. Indeed, energy communities define themselves as *an autonomous association of persons united voluntarily to meet their common economic, social, or cultural needs and aspirations through a jointly owned and democratically controlled enterprise*. In doing so, they adhere to the cooperative values *'of self-help, self-responsibility, democracy, equality, equity, and solidarity', and 'belie[ve] in the ethical*

[3] (source: https://www.gussingrenewable.com and Energie Partagée).

values of honesty, openness, social responsibility and caring for others (Rescoop 2020). This means that energy communities are a way not to foster only renewable energy technologies but have been more and more associated with the concepts of energy democracy, citizenship and justice (Jenkins 2018).

11. Regarding energy democracy, the current idea is that citizens are the owners and also at the core of the management of these initiatives. Energy communities are seen as a way to enforce energy democracy. Energy democracy is defined as (1) popular sovereignty where citizens are recipients of energy policy, stakeholders (producers and consumers) and accountholders; (2) participatory governance through inclusiveness, transparency, access to information, energy education, and awareness-raising; and (3) civic ownership at the core of power generation and transmission and distribution infrastructure (Szulecki 2018). De fact, energy communities have been also associated to the idea of energy citizenship, which means that people investing in these initiatives are more than financial investors, with energy communities contributing to the development of a new figure: an *energy citizen*, defined as "*the awareness towards the responsibility for climate change, equity and justice in relation to siting controversies as well as fuel poverty and […] the potential for (collective) energy actions, including acts of consumption and the setting up of community renewable energy projects*" (Devine-Wright 2007, 72). And indeed, in energy communities' shareholders are invited to express their views on energy in debates taking place during an assembly driven by the fundamental principle of one people one voice; they could also benefit from training to become empowered on energy issues.

12. Then energy justice has been addressed by these initiatives. As shown by Magnani et. al, renewable energies is a strategic field where for example private companies tend to install renewable energy installations in deprived area where people are less likely to contest and keep their benefits (Magnani 2021). Energy communities should address also this fact by considering, instead, energy justice as an ideal political goal (Szulecki 2018), acting as the moral assumption of the good functioning of democracy through the inclusion of all social groups in the energy transition (Szulecki and Overland 2020; Martiskainen 2017; Forman 2017; Hanke and Lowitzsch 2020). In particular, energy communities have been considered by European institutions as a way to fight against energy poverty (European Commission, 2016; European Parliament 2018; European Union 2019), especially for the 82 million people in the European Union touched by this phenomenon, who have few resources to warm their houses or cook, and use scarce materials causing intense air pollution and health problems (Clancy 2002;

Clancy and Skutsch 2003; Clancy, Feenstra, and Daskalova 2017; Martiskainen, Heiskanen, and Speciale 2018).

13. For example, the distributional aspects of energy justice are covered by energy communities since they guarantee equal access to outcomes in the form of benefits and services to all their shareholders as the fact that everybody can participate whit a minimum entrance fee (Johnson e Hall 2014). Regarding procedural justice, energy communities also provide equal access to the decision-making process for all shareholders since they do not require specific competencies; include citizens directly as shareholders equally considered independently from their investment; and help them to develop skills by building people's capacities on energetic issues. Seen as inclusive thanks to their philosophy based on social values, they also care for the recognitional aspect of energy justice in these initiatives (Lowitzsch and Hanke 2019). This means that energy justice is also a preliminary condition of the transformative potential of energy transition requires, which will require to be disruptive participation of all citizens, especially those traditionally of energy issues as women and low income (Coy et al. 2021).

1.1.4. Current gaps

14. Regarding the literature review, and when this work has been initiating in 2018, the vision of energy communities was somewhat idealized and normative, with the risk of attributing to them a potential to foster energy transition that they cannot meet. The shared idea which has legitimized energy communities sustains that, through their communitarian logic (Wittmayer et al. 2021), local actors will be intensely engaged in the management of their renewable energy installations and care for sustainability, becoming de fact more empowered on energetic issues (Burke and Stephens 2017; Standal and Winther 2016; Walker and Devine-Wright 2008). Even though it was more assumed than proven that energy communities could be related to the concept of energy justice and energy democracy. In particular, recent studies raised many doubts about these issues (Broska et al. 2022). Therefore, assessing the role that energy communities could have in the energy transition is fundamental, and it is what this thesis aims to question: the capacity of energy communities to bring all citizens equally to join these initiatives concerning the management of renewable energy technologies.

15. First, even if citizens take ownership of renewable energy installations and energy communities have been related to the concept of energy democracy, often the citizens are not the only ones present in these projects, which also deal with other private and public actors

(Creamer et al. 2018). This configuration, taking the form of collaborative governance, deserves to be questioned since the presence of citizens could be more esthetical than considered (Brisbois, 2019). This refers to another point shown by Magnani et. al (2021) where energy is a strategic field where some powerful actors as private companies, take the benefits from it (Magnani 2021). For example, in Germany, have been denounced to include citizens as a *greenwashing* practice. This means that private companies created their own citizens' associations where they also registered their employees to benefit from financial advantages (https://energytransition.org/2017/08/why-no-one-seems-happy-with-96-citizen-wind-power/), while the importance of the local character of its participants is still being discussed (Rudinger 2019).

16. Therefore, the risk is the confiscation of the collective benefits of these projects by profit-led actors, leading to question the social and environmental benefits of these initiatives as the real source of empowerment for citizens to manage energy issues (Brisbois 2020; Hoicka et al. 2020). Thus, various questions have been raised in the literature, like: *are local citizens owning the renewable energy project* (Creamer et al. 2018)? *How far have citizens mastered the rules of participation in terms of process-decision-making and benefitted from the outcomes* (Becker and Kunze 2014; Haggett and Aitken 2015; Walker and Devine-Wright 2008; Tricarico 2021))? However, these issues remain still understudied, leading to an abstract conceptualization regarding the presence of citizens in the ownership of these initiatives.

17. Then the idea of energy citizenship was also to address with some authors showing that the shareholder's engagement was still far to be reached. For example, contrasting with this idea of engagement in energy community projects is the fact that recent studies tend to show that only a minority of shareholders are involved in these kinds of projects. Moreover, far from being only altruistic by investing but caring for improving the environment for people around, it has been shown that economic motivations appear in many cases more important than social and environmental motivations (Bauwens 2016), leading to question energy communities' actual capacity to "produce" an energy democracy and energy citizens (Islar and Busch 2016; Van Veelen 2018). As shown by the article of Islar and Busch (2016), some shareholders explicitly declare that they were "not here to save the polar bears" but rather to make money. This issue is especially true at a time when an economical turn has been identified in these initiatives (Bauwens et al. 2022).

18. Another point regards the fairness of this democracy (Sovacool and Dworkin 2015; Szulecki and Overland 2020). Few data are available on the composition of the members involved in these initiatives, the general trend is to identify a substantial homogeneity among them, resulting in an overrepresentation of males and medium-high income (Fraune 2015; Yildiz 2014). Some studies show also that women are underrepresented in executive committees, confirming that the energy world is considered a male and expert's domain (IRENA 2019). Moreover, in energy communities, preliminary studies tend to show that these initiatives also lack representativeness: this means that, far from leading to more fairness, energy communities can reinforce social inequalities (Fraune 2015; Łapniewska 2019). Therefore, it was also important to better understand the inclusivity of these initiatives, especially if and how power and inequalities have been crossing energy communities. The inclusive dimension of these initiatives also appears primordial to question: are all kinds of citizens likely to be included in these projects? Or are we facing an Athenian democracy, with only a part of the population participating in these projects (de Wildt et al. 2020; Thomas, Demski, and Pidgeon 2020)?

19. Thus, this dissertation started from the statement that up to this moment the literature' association of energy communities with democracy or justice is more taken for granted than proven (Creamer et al. 2018; Van Veelen 2018; Łapniewska 2019). Moreover, both within the European Union and more generally in the energy field, few statistical data are available to assess these initiatives' democratic and inclusive characters. Thus, a strong need emerges to better frame the situation (Clancy 2019), especially when energy communities are expecting to reach 37% of the European population by 2050, it appears more than crucial to address these issues (Kampman, Blommerde, and Afman 2016). To do so, I choose to adopt a critical approach of these initiatives questioning how they fit really with the concept of energy democracy, citizenship, and justice. The present dissertation argues that previous literature could have overstated the capacity of energy communities to bring more energy democracy and justice with power and inequalities present also across the energy communities and impacting their disruptive potential (Agarwal 2000). The aim is not to raise doubts about the potential of energy communities, which remain a strong way to change politically the way to conceptualize energy but help energy communities to understand which barriers they have still to overcome as also provide some policies recommendations to reach their goals.

1.2. Theoretical framework

20. To frame this issue, I choose to consider energy communities as collective action initiatives first since addressing a new way to produce energy relates to climate change problem, a common issue and second this organizational form corresponds to this design (Bauwens 2017).

1.2.1. Free rider's behaviours and climate issues

21. Energy uses are the first cause of CO2 emissions and thus climate change (European Environement Agency 2021), producing substantial damages that will be accentuated in the future if nothing is done (IPCC 2018; 2022). Consequently, limiting the emissions of fossil-fuel energy is becoming one of the main challenges for our society, which requires us to shift our way of living (Manisalidis et al. 2020). However, despite the emergence of climate change being more and more stressed by scientists, only few people are willing to act (Olson 1965). As shown by the literature, climate change refers to the situation of a social dilemma or free riders' behaviors, which are framed as follows: "*If each individual selects strategies based on a calculus that maximizes short-term material benefits to self, individuals will take actions that generate lower joint outcomes than could have been achieved*"(Ostrom, 2009). This is what happens at the level of energy transition, where at the individual level it is hard to find the incentives to put efforts in it, like investing in renewable energy technologies or change personal behaviours towards more sustainable ones (Bauwens 2017).

22. And definitely, the low carbon transition has been driven by only a small part of consumers, willing to pay a premium: "*Only a small fraction can be expected to pay a premium for social or common benefits. Probably too few will be willing to pay more to achieve significant economies of scale*" (Fouquet 2010, 6593). Therefore, on the one side, it is very likely that the majority of people is led by short-term perspectives and will continue to overconsume environmental resources. On the other side, however, people who have invested could find it unfair that the benefits of low carbon transition are shared by everybody through a global reduction of CO2 emissions and hence become discouraged by the fact that their growth of renewable energy is still insufficient to provoke more profound changes. In this case, as the literature has highlighted, the common tragedy of a collapsing of the natural ecosystem threatening the viability of our society is very likely to happen (Hardin 1968).

23. Free riders' behaviors, leading to the absence of engagement of citizens on these issues, already provoked some problems. For example, in the European Union, air pollution has been

judged responsible for the deaths of 400.000 people. In particular, in Italy for example, the situation is dramatic. Comparing 949 cities across the whole European Union, the cities of Brescia and Bergamo occupy the first position for the highest burden of mortality related to PM2.5, while for NO2, Milan and Turin are in the top five (Khomenko et al. 2021). In Treviso, one child out of five suffers from respiratory problems due to air pollution. This confirms the idea of the zero-contribution thesis, that is individuals cannot manage their common or group interests and will need a coercive force to orient them.

24. Indeed, neither the state nor the market appears particularly fit to foster a change towards more sustainability (Ostrom 2010). In the first case, the state is generally referred to as a coercive authority able to orient the behaviours of its citizens. But as shown by the literature, the social acceptability of renewable energy is still an obstacle to its diffusion, characterized by a lack of trust which led citizens to be very defiant even with a state intervention (Azarova et al. 2019; Jobert, Laborgne, and Mimler 2007). The market solution, instead, is challenging to apply. It would require privatizing a shared resource as the climate (which is virtually impossible) and secondary care for sustainability through social and environmental issues antinomic to these initial purposes. Moreover, letting the market regulate renewable energy, as the economic state of the incumbent, following the "laissez-faire", could threaten the development of renewable energy technologies and give an advantage to the big companies already present in the market (Magnani 2021). Therefore, due to its intrinsic characteristic of common good and the risk of the free rider's behaviors, finding solutions for diffusing the energy transition requires considering original forms of organizations capable of resolving social dilemmas (Haggett and Aitken 2015).

1.2.2. Energy communities, as a node of a polycentric governance

25. To resolve the zero-contribution thesis in the environmental field, the literature on the commons and especially the second generation has thus been focusing on the community scale (Araral 2014), developing *a normative approach suggesting that a flexible, decentralized, and sustainable provision system could be achieved by the involvement of and control by communities* (Natalia Magnani, Dario Minervini, and Ivano Scotti 2018). In this view, energy communities are anchored in complex mechanisms of governance characterized by multiple centers of decision-making, acting with some degree of autonomy but still connected. As explained by McGinnis and Ostrom (2011), *polycentric governance requires a complex combination of multiple levels and diverse types of organizations drawn from the public,*

private, and voluntary sectors that have overlapping realms of responsibility and functional capacities. … In addition, private corporations, voluntary associations, and community-based organizations play critical supporting roles in a polycentric system of governance, even if they have not been assigned public roles in an official manner (McGinnis and Ostrom 2011).

26. Since its study on the metropolitan area, the work of Ostrom has been particularly used by numerous scholars regarding the management of common pool resources in the environmental field. In a complex environment, self-governance is a fundamental node that can led to achieving better results identified through the eight principles developed by Ostrom (Carlisle and Gruby 2019). Energy communities implicating small-scale organizations nested in the larger-scale system are seen as a node of a new energetic system, which can help to perform the carbon-neutral objective until 2050. Indeed, based on the local scale, this "third way" has been strongly growing as already said more than 3500 initiatives and 2 million citizens, showing that citizens have a strong appetence for renewable energies, as they also manage collective energy projects (Wierling et al. 2018). Energy communities are defined as *projects where communities (of place or interest) exhibit a high degree of ownership and control of the energy project, as well as benefitting collectively from the outcomes (either energy-saving or revenue-generation)* (Seyfang, Park, and Smith 2013). This means that they combine at the same time economic incentives and social norms (Huybrechts and Mertens 2014). In this view, energy is not a private or public good, but it is restored as a new common, meaning that collective action initiative will implant a set of social protocols which allow avoiding the "tragedy of the commons" by coordinating energy at the local scale (Ostrom, Gardner, and Walker 1994).

27. In concrete terms, this means that people in an energy community provide an environmental impure public good, generally private and public benefits as a joint product (Cornes and Sandler 1984). Indeed, energy communities develop their renewable energy installations and consume and sell their energy to their shareholders and other customers. Their shareholders also receive remuneration for their investment through a return on equity. But this market logic is limited. Indeed, these organizations are non-commercial entities, often but not only organized in cooperatives, having as their primary purpose to provide environmental, economic, or social community benefits (Huybrechts and Mertens 2014; Rescoop 2020). In this sense, energy communities seek to provide public benefits, like reducing greenhouse-gas emissions and new jobs in renewable energy (Bauwens 2017). Their return on equity is also limited for shareholders, while their governance is organized on the principle of "one people,

one voice" (Rescoop 2020). A variety of actors, like citizens and SMEs or local authorities, are allowed to participate in energy community projects but should respect a local and bottom-up approach promoting citizen participation (European Parliament 2018).

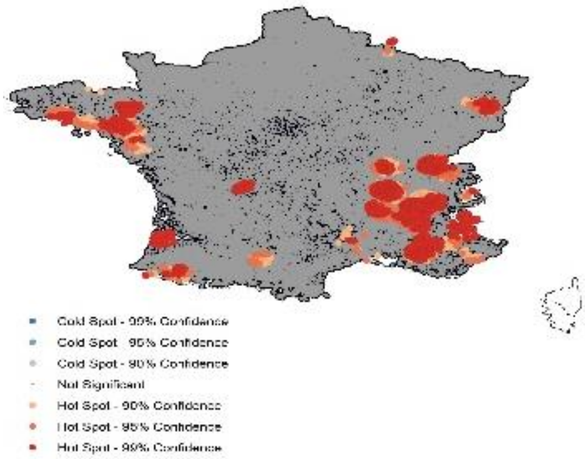
28. Consequently, energy communities are particularly fitted for the deployment of the energy transition, allowing them to resolve the prisoner's or free-rider dilemma. By providing financial retribution and advantages to their members, collective prosumers, having invested in these organizations, energy communities reintroduce in the common management the standard economic incentives. Thus, the personal benefits offered by joining energy communities exceed the costs of personal commitment (Olson, 1965). Moreover, energy communities create collective incentives, and qualified cost-efficient mechanisms to change how to produce and consume energy and fight against free-riding behaviors. Especially, they allow the development of a sense of social identity and common norms, encouraging the implementation of local rules and practices regarding energy conservation and low-carbon lifestyles. They also foster renewable energy development by increasing trust in these technologies (Fielding and Hornsey 2016; Ozyilmaz, Erdogan, and Karaeminogullari 2018; Walker et al. 2010). Another advantage of energy communities is the local scale of these initiatives: leading to more creativity and experimentation, energy communities allow to find new solutions and a better institutional fit because sustainability actions will be adapted to the peculiar local contexts (Andersson and Ostrom 2008; Ostrom 2010).

29. Moreover, a second dimension for which I choose to consider energy communities as collective action initiatives is to analyse how far this type of self-governance organization is anchored in specific context. In this case, I refer and mobilize the literature on socio-ecological systems (Delgado-Serrano and Ramos 2015; Cole, Epstein, and McGinnis 2019; Epstein et al. 2013) to show that energy communities are anchored in different contexts which will impact their paths of development. Inded, this approach considers the interaction of energy communities with their environment regarding *the resources (biophysical and technical) and the governance (institutions, rules and processes) system* (Kalkbrenner and Roosen 2016; Magnani and Carrosio 2021; Wirth 2014). For example, it is quite surprising that despite huge potential, renewable energy communities have been more developed in Northern European countries than in Southern Europe. Another example shows also in the case of France which shows that despite "natural" advantages, renewable energy projects are less likely to be developed in some southern parts. This means that despite the fact that the politic regarding renewable energy has been for the moment territorially blind, this aspect is also a fundamental

aspect to consider. In France, for example, the important development of renewable energies can be explained by the presence of an important network of actors for twenty years promoting enewable energy while in the North-West, despite an important potential regarding wind power, people have not been able to create this dynamic which can be explained in part by the fact this rural area has been touched by deindustrialization and poverty, exode and disaffiliation (Coquard 2019).

30.

<u>Map 1</u>: State of renewable energy 2018 in France-Made by the author with Arcgis



Source: https://www.data.gouv.fr/fr/organizations/open-data-reseaux-energies-1/

1.3. Main research questions and structure

1.3.1. Problematics

31. This dissertation confronts the emphasis put on the potential ability of energy communities to bring all citizens at the core of energy production with the concrete realities represented by these initiatives. This approach aims at filling a gap in the academic literature since scholars tend to analyze collective action in resources management in terms of efficiency but often forget that power and inequalities can also appear within these initiatives (Cleaver and De Koning 2015; Hall et al. 2014). The polycentric governance could also be seen as a neoliberal orientation leading to the disengagement of the state to the profit of private actors and a way

to produce and reproduce inequalities (Kashwan, MacLean, and García-López 2019).Therefore, the theoretical contribution of this doctoral research is to bring a critical approach to the institutional analysis framework, assessing the transformative potential of energy communities in regard to the broader society, a crucial lens for public policy to better frame what are energy communities and their real potential. Moreover, since energy democracy, citizenship, and justice remain under-conceptualized, this study seeks to better frame these concepts. Finally, this research adopts a quantitative approach to fill the gap regarding the lack of data necessary to frame energy communities since, when I initiated my thesis, the last relevant quantitative study in this sense was realized in 2014 (Bauwens 2016). Finally, by using also the socio-ecological framework, the aim of this work is also to question the different paths taken by these initiatives(Brisbois, Morris, and de Loë 2019; Cole, Epstein, and McGinnis 2019; Magnani and Carrosio 2021).

32. In order to fill this objective, the main research question guiding this work is the following: **do energy communities present a transformative, political and social potential towards more energy democracy and justice in the energy world?** As highlighted in the research gap, during this thesis, I will be discussing the concept of energy citizenship, democracy, and justice, considering energy communities as a collective action initiative.

33. First, I choose to consider the constitutional level of energy communities in order to understand **who really owns energy transition.** As shown by the literature, it is likely that in common-pool-resources management some actors can try to take the control of energy transition (Brisbois, Morris, and de Loë 2019; Magnani and Carrosio 2021). Citizen participation could likely be only ostentatious. For example, in France, a debate has been launched regarding the type of crowdfunding to finance these projects, underlining the importance of equity-crowdfunging (Girard and Deffains-Crapsky 2016). This means that If some platforms propose to citizens to invest their money in renewable energy projects, their participation corresponds to a loan without being really implicated in the management of the projects since they are not owners. Another issue is also the percentage held by citizens, to understand if their participation is majoritarian and only minoritarian. Moreover, even when shareholders hold a part of social capital, this is not a guarantee of full participation. Indeed, renewable energy projects need effective structure to ensure that citizens can really have a world to say in their projects (Aichholzer 2016; Bauwens and Devine-Wright 2018; Agarwal 2001).

34. Then another issue is to assess if, at the micro-level, actors are really likely to fit with the concepts of energy democracy and citizenship. In these initiatives, the shareholders are calling out to be more engaged on energy issues by actively participating in their communities, but also by adopting and diffusing around them sustainable practices, such as reducing their energy consumption and being more respectful of the environment in general as also caring for the social aspects of energy transition (Berka and Creamer 2018; Rogers et al. 2012; Sloot, Jans, and Steg 2018). With spaces for confrontations and discussions, citizens are at the core of the process of exchanging their views, fixing the rules of functioning, and deciding how to orient their projects (McHarg 2016; Szulecki and Overland 2020). In terms of practices, this means that the energy communities' shareholders should meet regularly to follow and develop their projects. Energy communities are also not limited to the participation of the shareholders since they aim to help them to be more empowered on these projects and thus engaged. For example, energy communities also organize training courses to build shareholders' competencies, while once per year, a general assembly is organized to approve the financial exercise and the various decisions of the directive board. But, considering the rational choice theory and the prisoner's dilemma and already highlighted by a part of the literature, it is highly probable that only a minority of shareholders get involved in energy communities: this means that few shareholders will be willing to give part of their time and resources to the collective organization and be more likely to act again as free riders (Van Veelen 2018; van Veelen and Eadson 2019). Thus, to problematize the trend that postulates (instead of proving) that engagement is high for energy communities' members, I look to define citizen engagement in energy communities.

35. Then, as said before energy justice is a preliminary condition regarding a good functioning of the democracy ensuring a fair representation. For the moment, the literature has shown that justice in energy communities has not been the main focus of these initiatives (Forman 2017; Hanke, Guyet, and Feenstra 2021). This could be partly explained by the fact energy communities could be considered hybrid organizations led both by economic and social motivations (Groß and Mautz 2015), with their shareholders more likely to focus on their own interests rather than caring for others. This means that far from being led by altruist motivations regarding the importance of the social impacts of their initiatives and fostering energy justice in these initiatives, they could be more focused on maximizing the financial outcomes of their energy community projects. This means that somehow people participating in these initiatives will be less likely to develop altruist motivations and care for others as could be expected (Nyborg 2018). But on the other side, the fact to join an energy community could

also create social identity, with the need to conform to the expectations of this social group and thus care for energy justice issues (Barth et al. 2021; Ostrom 1998; Sweetman and Whitmarsh 2016). In this case, the problem for that energy justice is not so diffused in energy communities could lead more to the translation of the shareholder's preferences by the executive board of these organizations.

36. Finally, theoretically, the literature on collective action initiatives tends to analyse these initiatives under the lenses of efficiency, letting aside the asymmetries of power that could appear in these organizations (Cleaver 2007; Cleaver e De Koning 2015; Hall et al. 2014). Energy communities by their organizational design promote inclusivity and consider in this thesis as *equal access to opportunities and resources for people who might otherwise be excluded or marginalized* are particularly waiting on these points. In particular two categories have been particularly underlined: women and low-income people, two categories as underlined by Joy Clancy, which oft overlaps (Clancy 2020). Although some studies show that women are underrepresented in community-based management organizations (Agrawal 2003; Baland, Bardhan, and Bowles 2007), the term "gender" started to appear as a variable of interest in collective action literature only in 2005 (Łapniewska 2016). Therefore, the two last chapters of this thesis have been focusing on women.

1.3.2. Structure of the thesis

37. To present this dissertation, a paper format has been adopted. Each of the following chapters will deal with a specific theme regarding the link between energy communities on the one side and energy democracy and justice on the other, adopting a critical lens toward collective action initiatives and a quantitative research approach. Each paper in this doctoral research contains a distinct contribution to the shortcomings in the literature illustrated previously. The following five abstracts provide an overview of each paper, illustrating the methods, the findings, and the original contribution of this work to the academic literature on energy communities, energy democracy, and energy justice.

Paper 1: A typology of energy citizenship models: an analysis of the ownership structure and institutional logics of 164 energy communities.

38. This paper investigates the composition of the energy communities' ownership in France. This analysis contributes to the research gap regarding the difficulties of conceptualizing what an energy community is. However, if the existing theory has stressed the local anchorage and the citizen's character of these projects, other studies have shown that, often times, many actors are present in these projects, leading to a diversity in their configuration. Therefore, the first need is to assess is the importance of the citizens' presence in these projects. Subsequently, the focus will also be to understand whether the projects' configuration can impact the institutional logic that drives the governance of these projects (Wittmayer et al. 2021). Indeed, the growing involvement of diverse actors in the projects' governance (including small and medium businesses, equity crowdfunding platforms, corporations, and local authorities) question the representation of the citizens and the distribution of the outcomes (Walker and Devine-Wright 2008).

39. The analysis relies on both quantitative and qualitative data. The quantitative analysis is based on a dataset provided by Energie Partagée in France and uses a cluster and a multiple correspondence analysis. The qualitative evidence, instead, comes from semi-structured interviews and an extensive work of document analysis.

40. Findings show that energy communities are driven by citizens in France, confirming the idea of direct ownership of the process of the energy transition. Particularly interesting is the fact that these projects manage to deal with the community logic but also with the market and the state ones. In the case study, these logics are non-antagonistic-, with citizens gaining administrative competencies and generating financial attractivity; however, recent evolutions show that both public and private actors tend to be more and more present. The qualitative data shows that collaborative governance seems to be the best road to follow even for projects traditionally held by citizens, as it allows them to mobilize more resources and lead more significant projects. Furthermore, the equity crowdfunding platform developed by Energie Partagée Investment, now rentable, is a reliable tool for conciliating different logics and putting the finance to the sustainability service. Finally, this paper suggests that at a time in which the landscape of energy communities is strongly evolving, some "*garde fous*" should be put forward, to ensure that citizens will remain at the core of these projects.

Paper 2: Energy citizen or energy investors: Are energy communities really developing an energy citizenship?

41. This paper investigates the pertinence of relating the concept of energy citizenship to people participating in energy communities. These organizations have indeed been presented as a way to raise awareness and empower their participants (Devine-Wright 2007); however, this idea is more taken for granted than proved. In particular, some studies have shown that shareholders are not always prone to care for environmental issues, but instead affirm the prominence of their economic motivations- e.g. *"We are not here to save polar bears"* (Islar and Busch 2016). This tendency appears more affirmed over these last years since energy communities tend to be more financially attractive. Therefore, it is essential to investigate energy community participants to assess whether they are more related to the idea of an energy citizen or of an energy investor (Bauwens and Devine-Wright 2018).

42. The analysis relies on quantitative data gathered at the individual level through an online survey in Ecopower, Belgium, and ènostra, in Italy. Energy communities are still considered as an alternative in Italy and ènostra is ten times smaller than Ecopower which could lead to the highest level of energy citizenship. Items are based on the current behaviors of energy communities' members regarding their participation in the cooperative and their daily behaviors regarding energy issues (Heiskanen et al. 2010). In addition to this, a set of questions regarding their self-assessment in relation to their changes of practices since their participation in the cooperative (empowerment) was also used (Coy et al. 2021).

43. Findings confirm that, since people are not much likely to participate in the cooperative's current activities, the level of energy citizenship is pretty low. Unexpectedly, only a minority declares of having been empowered on energy issues following their participation in the energy communities. Consequently, the idea of developing awareness on energy issues is seriously questioned. In addition to this, even more worrying is that shareholders are also intensely engaged in environmental issues: this means that energy communities could appear quite elitist, gathering only people who already care about environmental issues. This "*entre-soi*" attitude appears quite antinomic to the goal of empowering the whole society on sustainability issues. Therefore, this paper suggests that the role of energy communities should be strongly re-evaluated, e.g., in terms of implementing incentives to promote both

participation and diversity in the participation as also the context in which is anchored the project.

Paper 3: Are energy communities willing to bring more justice to the energy world? A comparison between Italy and Belgium

44. This paper investigates the potential role of energy communities to bring all citizens into energy transition. Energy communities have implemented a form of management based on distributional, procedural and recognitional justice that allows all local stakeholders to engage and participate in the energy transition in a non-discriminatory and inclusive way. In theory, each citizen can access these initiatives by asking for a low amount of financial participation, while the decisional procedures are based on the principle of "one people, one voice". Because of this, it has been taken for granted that energy communities will eventually bring more energy justice to the energy world (Hanke, Guyet, and Feenstra 2021). Nevertheless, the persistence of solid representation inequalities within these initiatives is almost self-evident, with shareholders appearing to be pretty homogeneous in their main characteristics (male, white with at least a high school diploma, middle- and high-income earners).

45. Moreover, the shareholders have also economic motivations to participate in energy communities, a trend which is recently raising with some energy communities presenting high performance. Two things that lead to the questioning of the fairness of these initiatives (Fraune 2015; Yildiz 2014). It is far from taken for granted that the shareholders of energy communities will really care for energy justice. They could first disagree with the distributional and procedural aspects of energy justice for example the fact to manage energy as a common or adopting the principle of one people one voice. Especially, the lack of recognition characterized as the awareness of the discrimination potentially experienced by some social groups could be also present through a lack of focus on inclusive issues pr bias at the procedural level, showing that power relations and inequalities between shareholders are present in energy communities (Fraser 2007; Honneth 2004; Martin et al. 2016)(Martin et al. 2016; Fraser 2007; Honneth 2004). Therefore, a gap may appear between the potential of inclusivity stressed by energy communities and the reality of these initiatives.

46. The analysis relies on quantitative data gathered at the individual level through an online survey in Ecopower in Belgium and ènostra in Italy, where since energy poverty is highest and is energy communities is still seen as an alternative, the greatest level of energy justice could

be expected. It concerns the shareholders' self-assessment of their opinions regarding the importance of the three tenets of energy justice: distributional, procedural, and recognition. The distributional aspect is studied through the shareholder's view regarding the access and the outcomes in these initiatives while for the procedures, the principle of "One people one voice" has been questioned. The recognitional aspect of procedural justice is assessed through the self-assessment of shareholders' opinions regarding the fairness of the management and the discrimination against some categories of shareholders has been used (Hanke, Guyet, and Feenstra 2021).

47. Findings show that energy justice is far from being at the core of shareholders' preoccupations. Especially in organizations that could be more profit-oriented, as is the case for Ecopower, the shareholders have been less likely to stress the importance of energy justice. Therefore, if it is true that social issues are important in these organizations, they are so for more aesthetic reasons, with a low willingness to act for more inclusivity. In conclusion, this paper suggests that energy communities will not be able to bring those with the most needs (such as women and low-income earners) into the energy transition. Moreover, it questions the role of public policies in helping energy communities to reach this objective to deal with recognitional issues and foster inclusive participation. Finally, context matters. The Italian cooperative ènostra seems much more likely to care for energy justice: this result, however, is not surprising if we consider that energy poverty and gender stereotypes are higher in Italy than in Belgium, and shareholders are more "engaged" in social issues. Further studies are needed to study southern European countries as fertile ground to develop best practices.

Paper 4: Are energy communities "gender-inclusive"? Gender stereotypes and gender bias in these initiatives

48. This paper investigated the environment of energy communities through a gender lens. Indeed, collective action initiatives have been considered a neutral environment. If its efficacy has been strongly analyzed, power and inequalities that can emerge in these organizations have been few considered (Cleaver e De Koning 2015). Especially in the case of energy communities, an ambivalence appears regarding their potential inclusivity towards women. On one side, the main topic of these initiatives deals with a male domain strongly related to STEM: energy, where socially, women are judged less suited (Carli et al., 2016). On the other side, energy communities based on collaborative management and renewable energies are presented as more fitted for women since women are seen as more agentic and care more for

sustainability (Allen et al., 2019). For the moment, the potential of energy communities as a factor fostering the presence of women in energy issues is seriously questioned since previous (but few) analyses show that in these organizations, women are even less present than in the traditional energy sector (Fraune, 2015). For example, if they represent 22% of the workforce in the fossil-fuel industry and 32% in the renewable energy sector, they are only 20% of the shareholders in energy communities (Pearl-Martinez and Stephens 2016). Surprisingly, for the moment, the academic literature has not addressed this issue. Therefore, since gender stereotypes have been identified as the main factor in explaining women's underrepresentation in energy issues, it is also essential to see if gender stereotypes are also present in the case of energy communities (IRENA, 2019; Łapniewska, 2019).

49. This analysis is related to a quantitative approach (N=5402) assessing the shareholders' views on gender roles stereotypes relative to the traditional gender roles and women acting in the energy field. Since these organizations present themselves as inclusive, to avoid errors related to the respondents' social desirability, the presence of gender bias in terms of competencies and aspirations has also been checked. This study has been led in two central European cooperatives: ènostra in Italy and Ecopower in Belgium. Since women's situation in the STEM (Science, Technology, Engineering and Mathematics) field and, more generally, in social life is worst in Italy, the highest level of gender stereotypes was expected (EIGE 2020). Our results show that explicit gender stereotypes are present in these organizations and that the awareness of this issue is limited. However, they are generally less present in Italy, even if the weight of the society is still present. For example, even having studied STEM, women tend to undermine their competencies compared to men. Finally, this chapter concludes on the importance of adopting a gender lens in these initiatives and the potential impact of the role model (Morgenroth et al., 2015). For example, in Italy, six women out of ten declare that having a women president (since 2019) has been a motivation to join these organizations.

Paper 5: Women in energy communities: an intersectional analysis of their participation

(Due to the reduced sample size of ènostra, the analysis has been led only on Ecopower)

50. This paper investigates the inequalities of participation regarding women in energy communities. At present, to the researcher's knowledge, only two studies have been focusing on the issue (Fraune 2015; Łapniewska 2019). However, these analyses were mostly

descriptive and explorative in nature, merely showing that women were largely underrepresented in terms of presence and investment when compared to men. Therefore, this paper seeks to better understand the lack of women's presence in energy communities by adopting an intersectional approach. As shown by the literature, women and men are not monolithic categories, but are influenced by other social dimensions which can hinder or foster their participation in energy communities (Johnson et al. 2020). In terms of access to the energy world, it is thus interesting to investigate the percentage of women deciding to join the cooperatives, but also their level of investments compared to men. Moreover, it is important to understand how other variables can play a role in shaping their presence and investments, such as: being in a couple, having children, field and level of study, age, and income (Allwood 2020).

51. The analysis relies on quantitative data gathered at the individual level through an online survey in Ecopower in Belgium. A large number of answers, 5114, allows to the development of quantitative analysis. For this analysis, socio-economics variables have been used to control for how these characteristics can play a role with respect to the gender of the ones choosing to join the cooperative and the amount of investments.

52. Findings show that studying women's participation should consider the fact that inequalities are intersectional. In particular, income can play a huge role in the (re)production of inequalities. This study shows that energy communities reinforce inequalities in the energy world but also produce new forms of exclusion. Women in renewable energy industries represent 32% of the workforce but 20% of shareholders in energy communities. But when considering women with fewer resources, they represent only 1.84% of the sample. Having children can also be a source of discrimination since women with children have fewer possibilities to participate in energy communities. These findings suggest the importance of considering inequalities as an intersectional process in order to find solutions adapted not to women in general but to women and their particularities (Søraa et al. 2020; Terriquez, Brenes, and Lopez 2018).

53. To conclude this introduction, this dissertation argues that to assimilate energy communities with energy democracy and justice hinders these initiatives' complexity. There is thus a strong need to overcome the idealized vision of these communities to consider their diversity. This doctoral research shows that if energy communities bring a decisive shift in the previous energy market, it is still far from being taken for granted that they will automatically lead to

direct implications for citizens and justice. Moreover, especially since renewable energy became rentable, the risk is that various economic actors (such as private companies and citizens) can be more driven by profits than social or environmental issues, putting into question the initial model of these organizations.

54. Overall, this research shows that social issues should be seriously addressed. If this does not happen, it is highly probable that instead than promoting more democracy and justice, energy communities could lead to the (re)production of the inequalities and power relations already present in the energy world. Even more worrying, under the cover of the citizen-led democracy and inclusivity, energy communities could worsen the situation of some social categories, such as women and low-income earners. Finally, this work shows that the cooperatives' national context is extremely relevant, with the Southern countries being much more likely aware of the inclusivity issue – a thing which would deserve to be studied more deeply. However, since these initiatives are still considered "alternatives" compared to the traditional energy market, some warnings must be put forward due to the fact that the democratization of energy communities could exclude women.

1.3.3. Limitations

55. At this point, it is important to precise that this survey has some limits. First of all, the different sizes of the two initiatives Ecopower and ènostra may lead to some distortions in the results, since it is known that the size of collective action initiatives can impact the motivations and the involvement of the shareholders (Olson 1965). For example, regarding Ecopower, the funders describe themselves as idealists and militants; however, today, with the cooperative's strong development and the cooperative's financial attractiveness, another more profit-driven profile could be identified (Bauwens 2016; Bauwens et al. 2022). The fact that ènostra is the smallest and youngest of the two, also proposing lower financial performances, could be thus an *a priori* explanation of the differences observed in both cooperatives. To avoid this particular bias, it has been chosen to control for the seniority of the shareholders, meaning to compare the different cohorts of shareholders: to do so, a variable has been created, breaking up the seniority of the shareholders at a time where the size of the cooperative Ecopower was similar to the actual one of ènostra. This variable was then inserted as a control variable in the analysis. Unexpectedly, however, results show that, expect for the involvement in the cooperative's activities, the seniority of the shareholders does not play an important role: in fact, ènostra generally tends to perform better on the different issues studied, independently from the seniority of the shareholders – and, thus, from the size of the cooperative.

56. A second limitation is that, when considering gender, I analyze it as a binary variable, categorizing respondents as either female or male. I do not consider the multidimensionality of gender (Łapniewska 2019). This is due to the due to the fact that in the initial survey when I asked about the gender of respondents, I got only a few answers of people not considering themselves as being a man or a woman. Therefore, the sample size has been too small to lead to a relevant, separate analysis. Also one lack regarding intersectionality is not to have considered ethnicity(Terriquez, Brenes, and Lopez 2018).

57. The third limitation identified is associated with the risk of answers' social desirability for the shareholders, as they evolve in organizations that present themselves as caring for social and environmental issues. Therefore, a bias can appear in the shareholders' answers, and we will discuss it, for example, in the chapter regarding gender stereotypes, with people undermining their opinions. To avoid this, explicit gender stereotypes have been compared to the effective behaviours adopted by shareholders in the cooperatives.

58. Then of course, a limitation of this thesis is to have analyzed only three countries and in particular, for energy citizenship and justice, only two countries: Belgium and Italy. Even if the justification is more than relevant especially allowing to better understand the impact of size and maturity on the level of energy democracy, citizenship and justice, this could raise some doubts regarding the replication of my results. In this case, one of my aim is to pursue this work, initiating already to collaborate with Portugal, where energy poverty is also high in order to identify if also similar patterns could be identified. Moreover, it could be interesting to pursue this work in other places, for example relatives to the third and fourth chapters, to understand in eastern Europe, that after years of communist domination, civil society has been able to mobilize, especially today, where energetic independence is becoming an essential issue.

59. Finally, after gaining experience and developing a network in this field, I realized that my survey could have improved, with some questions or items that could have been formulated in a different, more comprehensible, and useful manner. Nevertheless, this can represent a good (even though not perfect) starting point for future research, offering a cue for reflection to develop clearer and more inclusive surveys that will eventually lead to a deeper understanding of the issues explored and debated in the present dissertation.

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Chapter 2: Methodology

1. Since the beginning of the 2000s, energy communities have been strongly growing in the European Union, but one difficulty in better framing these initiatives concerns the lack of data. The presence of citizens in these initiatives is still lowlily assessed, as well as their member composition, while, when I begin my P.h.D, only one study adopted a quantitative approach in 2014 (Bauwens 2017). This is especially crucial at a time when energy communities are strongly growing, and some discussions appear regarding their democratic potential, for example, in Germany, while inclusivity was not really considered in this project. Therefore, when I initiated my Ph.D., this issue initiates to be raised with, for example, some European projects, such as the Comets project, emerging at the same time and choosing also to investigate this field. Therefore, this thesis aimed to fill this gap, especially with the collection of Data through multiple case studies to give a better picture of energy communities' democratic and inclusive potential but also better understand the limit they are facing to get to this point. More precisely, in this work, I have studied three European countries: Belgium, France, and Italy, as explained more in detail below.

2.1. Choice of case studies

2.1.1. France

2. This thesis work initiated with the choice of France. Indeed, being French, I already had a good knowledge of the French situation and some contacts in Energie Partagée Association which allowed me to know about the availability of a new dataset. At this time, I was thinking of orienting my research project toward a comparison between France and Italy: *Energy communities: a comparison between France and Italy*, in which I aimed to adopt a geographical analysis of both countries. To do so, I went to the Sustainable Institut research of Utrecht to follow a summer school on this issue. However, one of my problems was the difficulty of conceptualizing what is an energy community, which was, from a methodological view, a strong obstacle to leading this analysis. Therefore, I choose to reorient my research design to concentrate only on France and look to identify the different patterns of these projects. The new research question became to know if these projects could see as coming from civil society and a model of energy democracy with citizens holding these projects but also involved. For this, I ask two other researchers, Doctor Thomas Bauwens and Nuria Moratal, working for EM

Management of Grenoble in the department of Carine Séby and Anne-Lorène Vernay, specializing in French energy communities in France.

3. As we agree with my coauthors, the case of France was particularly relevant since citizen energy have been recently strongly growing in a country traditionally characterized by a high presence of nuclear power in its energetic mix (World Nuclear Association 2022). It could be considered that France is an intermediate of development very dynamic and thus useful to identify also how these projects have been evolving. Especially one motivation to choose this case study was the change in the legislation in 2015 with the Law on Climate, recognizing these projects and becoming more supportive has led to increasing their numbers and thus a stronger need to frame them better. This collaboration between Energie Partagée and my research work thus responds to the need for a better understanding of the diversity and the complexity of energy projects as also to give energy communities more visibility in the academic world and open this field to new research, especially in France, where energy communities remain still understudied.

4. A second motivation was to identify if citizens were really able to find their place in market reconfiguration. As shown by literature, energy transition is a strategic field where different kind of actors evolves and try to get benefit from it (Magnani and Carrosio 2021). This means that citizen renewable energy can be also a way for private actors to develop energy, which can deeply question the capacity of these communities to bring energy back to citizens in terms of democracy. Especially in France, the association "Vents de colère" has been very active in seeking to hinder the development of wind parks and in mobilizing the local population against these projects. Therefore, the developers have a substantial interest in passing by citizen-led projects that facilitate their social acceptance in the territory in which they are implanted (Jobert, Laborgne, and Mimler 2007; Bauwens 2015). As shown by Magnani (2021), one of the highest reasons to refuse the implantation of a renewable energy project is “the perceived reduced benefits for the community” compared to the costs(Magnani 2021). Moreover, oft situated in an isolated area, where the population is judged more vulnerable, developing citizens’ renewable energy projects is a way for the developers to respond to the criticism, and the look of the French government, not just exploit a territory but create a development dynamic as also raising awareness on this issue (Barca, McCann, and Rodríguez-Pose 2012; Magnani 2021; Magnani and Osti 2016; Carrosio and Scotti 2019).

2.1.2. Belgium and Italy

5. Regarding the choice of Belgium and Italy, let's that it comes as a good opportunity since at this time, I had to change my initial research project, and Asset's project leaders were looking for a researcher interested in taking charge of the problems regarding gender inclusion. More precisely, Asset is an European project aiming to create a learning Community and Ecosystem that offers educational services in energy transition (https://energytransition.academy/). I have been charged by this project, Horizon 2020 to realize a study regarding first women and, more largely, democracy and justice in these initiatives. This study takes place first in ènostra since in a country such as Italy, where gender inequalities are one of the most important and women are underrepresented in STEM, it was important to assess in which measures of inclusivity could be present in these initiatives. I accepted the offer since I had thought it was a good way to question energy democracy but also justice from the shareholder's perspectives and thus will be a continuity of the first chapter and particularly suited to my theoretical framework.

6. Then I ask also Ecopower to participate, being one of the biggest European initiatives, which could bring me a large amount of Data and allow a comparison between both countries. Indeed, this relies on the work of Ostrom on socio-ecological systems: the resource and the governance system, which shows that energy communities are strongly linked to the social context in which they evolve. Presenting similarities, as explained more in detail below, Ecopower and ènostra are also very different. These two cases have been chosen because they will enable us to show the contrast between two cooperatives, one in Northern and the other in the Southern Europe following the socio-ecological framework. Another issue is also to question the traditional determinants of collective action initiatives as the size and the maturity of these initiatives on their capacity to foster democracy and, more originally an issue still under-discussed in collective action initiatives: justice. One of the main motivations to choose these two cases is to determine as it could be highly expected that energy communities develop different patterns regarding how they will implant democracy and justice, leading to consider them not as a whole but in their diversity in order to better frame them.

2.2. Description of the case studies

2.2.1. France

7. In numerous countries, the catastrophe of Chernobyl has been the source of great fear, and it is from this point that grassroot mobilisation has been observed. In the 1990s, renewable and citizen energy initiated their growth with the development of energy cooperatives. But at a time when some countries, such as Italy and Germany, decided to close their nuclear centrals, in France a large part of the national energy policy had been vested by the development of nuclear power. No real incentive to develop renewable energies technologies had been put forward, except for some research programs. Moreover, the idea that the traditional monopole of energy could be questioned was quite hard to conceptualize and even more so with the French tradition of centralization, which is an antagonist to the notion of a polycentric governance (Fraisse 2005). However, despite these initial difficulties, the premises for a decentralized model of energy communities have been slowly growing.

8. Especially in 2008, the creation of "Soliral Investment", which later became "Energie Partagée Investment" in 2010, is an essential step, as it created an equity crowdfunding platform, a tool to collect savings and finance renewable energy projects. In parallel to this, the Energie Partagée Association, funded by the ADEME[4], was created to support the development of these projects. All of the projects belonging to the Energie Partagée Association have signed a charter that guarantees local outcomes, open governance, ecological requirements, and a non-speculative approach. This project can be financed by Energie Partagée Investment and can only benefit from the association's support. But what seem to be particularly interesting in the development of energy communities in France is the fact that these projects are far from being uniquely held by citizens. To provide some figures, today 274 projects are labelled by the Energie Partagée Association, representing 24,103 citizens shareholders and 37 million €. For Energie Partagée Investment, 6700 citizens shareholders have instead invested 31,4 million € (https://energie-partagee.org/decouvrir/energie-citoyenne/chiffres-cles/).

9. But, the shareholders holding the social capital of these projects are not only citizens: local collectives represent 16,6 million of the social capital and this trend should rise in the coming

[4] The French institution called: Agence de la transition écologique

years, since for the first time in 2015 the Law on Energy Transition has allowed public collectives to create a mixed economy society. This juridical structure will enable collectives to have the majority in renewable energy projects; moreover, private actors can also be present in these projects, attracted by the collaborative governance model. They are more and more numerous to participate as it has been proved by recent meetings organized by some networks related to Energie Partagée where private actors were looking for tools to include citizens in their projects.

2.2.2. Belgium and Italy

10. The second part of this research has been based on an embedded multiple-case study design (Yin 2009), allowing to compare the concept of energy citizenship and energy justice in two organizations: *ènostra* (Italy) and *Ecopower* (Belgium), on which we will focus in chapters 4, 5, 6. Moreover, an embedded approach, treating a single unit as a sum of its parts, is justified because, across cooperatives, different segments could shape differently the levels of energy citizenship and energy justice, highlighting the multidimensionality of this research's results (Yin 2018).

11. Indeed, both *ènostra* and *Ecopower* present a similar organizational structure and have the status of a cooperative based on the principle "one people, one voice". Moreover, they are the two most prominent cooperatives in their respective countries and are also members of Rescoop, adhering to their charter of values regarding participation and citizen empowerment (Rescoop 2020). Each citizen can join the cooperatives. *ènostra* has two membership fees: one is very low 50€ (2 shares of 25€) and is refunded if people decide to leave the cooperative; the second is 500€, giving access to specific services. Concerning *Ecopower*, each citizen can buy a share, which costs 250€ and it is fixed for six years to limit capital fluctuation. To avoid pressure coming from shareholders regarding the return of benefits, the number of shares owned by the shareholder is also limited to 20, and the return on equity at 6%/year.

12. The cooperatives also try to promote rational energy use and raise awareness of energy and sustainability. Each year, shareholders are invited to participate and express their views during the general assembly. Moreover, the cooperatives propose some programs to help their users to better manage their consumption. In Ecopower, online tools (EnergieIDM) and offline help (quickscan & Ecotraject) are proposed to help their members to decrease their electricity consumption. Ecopower also offers meetings, such as Energy cafés, where the cooperative meets their shareholders around the Flanders. Film projections have also been organized, as

We the Power by Patagonia, and an online platform has been implemented (www.burgerenergie.be) for fostering energy democracy. Also, *ènostra* tends to develop similar activities, with the diffusion of webinars organized for their shareholders. The implementation of new renewable energy installations is also an invitation for the shareholders to meet and exchange.

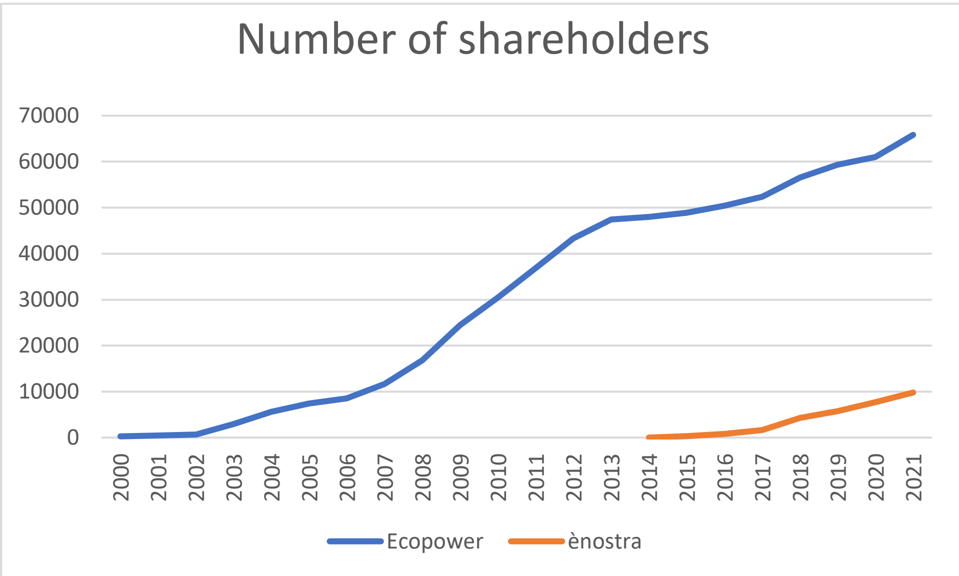
13. However, ènostra and Ecopower differ in many of their characteristics, which I believe could be very interesting, as contrafactual difference, to question in order to better understand which factors can affect their potential to foster more energy democracy and justice, as an outcome. Especially, I choose to use as main differences the traditional determinant of collective action as the size and maturity of these initiatives. The maturity for example could impact the effective participation to these initiatives as shown by the collective action theory relative to the size(Olson 1965a). The state of development could also lead the shareholders to have different motivations and thus less likely to engage or looking for more energy justice in collective action initiatives, privileging in this case, their own profit and limiting their participation to their financial contribution and individual benefit (Bauwens, Vaskelainen, and Frenken 2022b). Finally, following the socio-ecological framework, *conceptual framework providing a list of variables that may be interacting and affecting outcomes in social-ecological systems* (Partelow 2018), I compare how the context of the country in which is anchored the project can shape how energy citizenship and justice (Cole, Epstein, and McGinnis 2019b).

14. Thus, I focus on:

15. **<u>Maturity:</u>** First, Ecopower, created in 1991, is older than ènostra, created in 2014, leading to consider Flanders in the literature as a pioneer while Italy has still difficulties to develop this model (Krug et al. 2022; Conradie et al. 2021; Alex Felice et al 2021; Magnani and Osti 2016). The story of Ecopower begins in 1983, with a group of people initiating to renovate of "The Rotselaar windmill" and managed to produce electricity for 120 households. The 18 October 1991, Ecopower became officially a cooperative. The next big step will be in 2003, with the liberalization of the energy market, opening for the cooperative the possibility to use energy coming from their own installations. Since then, the development of the cooperative has been pretty strong: already, after six months of existence, more than one thousand people already joined this initiative. Today they are 64.114 shareholders, with a team of 49 people.

16. Compared to Belgium, Italy has the strongest tradition regarding local energy production since many communities hydro schemes have existed in the Alpine region since 1900. Despite of this, ènostra was created more than twenty years after Ecopower, in the frame of the European project RESCoop 20-20-20 implemented to boost the creation of energy communities across the European Union. Four legal entities contributed to the founding of ènostra: *Avanzi*, a company promoting social innovation; *EnergoClub*, a non-profit association promoting grassroots initiatives for the energy transition; *Retenergie*, a RES production cooperative; and *ForGreen*, a RES production company which, after one year, chose to leave the project and take a more oriented business activity. Compared to Belgium, Italy is more advances regarding the development of renewable energy due to the deployment of important feed-in-tariffs (Antonelli and Desideri 2014). However, the idea of energy democracy has just been recently rising in the Italian landscape. è nostra is the most important initiative but compared to Ecopower has still few shareholders, even if the number of shareholders' trend shows good perspectives (Graph 1.1): the team is composed of 29 people and has 9806 shareholders.

17. **Graph 2.1:** Number of shareholders in Ecopower and ènostra



18. **<u>Stade of development</u>**: In terms of market, regarding Ecopower for its 30 birthdays, Ecopower could be proud to announce that they have already paid 16 million of dividends to their shareholders. Recently, a victim of its success and very pragmatically, Ecopower has introduced a temporary contract stop for the year 2022 to face more than 3000 new contract applications and develop new installations (source: https://www.ecopower.be/). This means that energy communities in Belgium have already reached the stage of incumbents in the

market while in Italy, these initiatives have still many difficulties to growth. Indeed, in Italy, despite a huge potential since 130 000 energy communities could be created, energy communities are still at the niche level.

19. In terms of energy production, Ecopower served already 2% of the Belgian energy market with a park composed of and producing, in 2021, 75 million of KWh (Ecopower Jaarverslag, 2021). Ecopower is now the cheapest energy supplier in the country and provided a dividend of 6% which led the investment to be not only green but also financially attractive. In Italy, things are completely different. Enòstra has been first an energy seller and it is only in 2018, that the cooperative fusioned with Retenenergie. This fusion allowed è nostra to pursue its development and to become an energy supplier through the development of new installations. But, if Ecopower makes more than 1.4% of the total energy in Belgium and cover the total consumption of their shareholders, ènostra produce only 0,01% and covers only 14% of the total consumption of their shareholders, which led them to be obligated to buy green certificates on the market (3.188.957,35 € in 2021) and be very dependent on the fluctuations of energy prices. With a park of production of ènostra composed by 12 installations producing 1.063.987 kWh in 2021, only those investing more than 500€ have access at the prosumer tariff (557 shareholders in 2021 and already 715 at the beginning of 2022), based on the actual price of electricity production coming from renewable energies installations belonging to ènostra, and thus being financially more convenient. As a result, the cooperative has still not been able to provide dividends to its shareholders a net result of 131K€ against 8,7K€ in 2020, even if in 2020 for the first year the cooperative managed to get a positive result. Finally, and maybe the most worrying for Italy, since the reduction of the feed-in-tariffs in 2013, some energy communities have decided to stop their activities, especially those working with solar technologies.

20. This difference could be explained by different contexts in which have evolved both cooperatives regarding legislation, capitalist system, culture and network and will serve to explain my results in the different chapters.

21. **Legislation:** Another important dimension to consider when looking to the differences between these two countries, being also an explanation to the lowest level of energy communities, regards the bureaucratic and legislative side, much more complex and unstable in Italy compared to Belgium. Regarding to Ecopower, the cooperative depends mostly on the Flemish legislation, i.e even if they develop some projects in Brussel and in Wallonie. And even

without a clear definition, self-consumption has been regulated for a long-time in Flanders (Inês et al. 2020). As explained by Rescoop: "Since 2003 Ecopower has a support mechanism which could be called a 'feed-in premium' that guarantees a certain ROI. The money does not come from a government but comes from green certificates that can be sold to suppliers who increasingly need them. When the market fails, the DSOs are obliged to buy them at a minimum price. They include this purchase in the price of the grid usage by the consumers. In other words, it is the (small) low voltage consumer that gives the incentive (about 90%). Now the price of electricity is very high, we don't get green certificates of course".

22. In Italy, things are more complex (Grignani et al. 2021), which led to consider that "a lack of national regulation prevents this form of initiative" (Come-res, 2022: https://come-res.eu/). Many changes have been observed during the "Conte Energia" as also complexity and instability for market players. Then, it is only in 2017 with the National Energy Strategy (SEN) of 2017 that energy communities appeared as a part of the Italian energy strategy. In 2020, the law N8/2020 on self-consumption and renewable energy communities is adopted, setting a general framework and incentives for energy communities. Then, in the National Energy and Climate Plan (NECP), in 2022, the role of energy communities as an important actor is confirmed. However, the risk is to let ènostra apart of new support mechanisms, as a form of national initiative not filling the criteria of proximity while for Ecopower, it won't be the case for Ecopower since in Flanders proximity depends on your activity: we only have one DSO, so proximity, if you supply, is the whole of Flanders for example. Europe does not define proximity" (Dirk Vansintjan, President of Rescoop). Moreover, another problem is the Italian bureaucracy raising many problems for energy communities, as it has been the case for example in the past for the mechanisms of green certificates: "Conto Energia" (GSE, 2010). This means that even if the new legislations try to push these initiatives, Italy actually without a government and still mired in an important bureaucracy as shown already by his delay in the transposition of the European directive RED II, could still discourage many initiatives to develop. Moreover, contrary to the alpine cooperatives, energy communities do not benefit from a special status and they do not have the right to benefit from their own local grid, which is coupled with: "*an explicit determination to exclude new entrants, but also due to the combination of the large sizes of historical companies and the presence of natural monopolies*", leading to hinder the development of energy communities.

23. **<u>Culture:</u>** As shown by Magnani, if the cooperative sector is developed in Italy with an important potential, few of them are really interesting in energy issues compared to Belgium where for

example in Flanders, already 40 initiatives have been already created. Indeed, even if social cooperatives are very present in Italy, i.e it is estimated that an estimated 400,000 participants in purchasing groups and districts of solidarity-based economy, few of them have an interest on energy, considered as a specific and complex good. More deeply, sustainable issues are less catching by the population with difficulty to raise awareness: only 7% of Italian considering climate change to be the single most serious problem facing the world, compared with the EU average of 18%, while in Belgium, the score is 25% (European Commission 2021b; 2021a). Moreover, Italy is crossed by strong gender inequalities, with again one of the lowest rate of gender equalities (EIGE 2021): 63.8 points for Italy against 72.7 out of 100 points for Belgium in EIGE's Gender Equality Index. In Italy, women are also one of the less represented in the STEM across the European Union. This means that there is also an highest risk in Italy to exclude women from these initiatives and thus diminish their transformative potential.

24. **Capitalist system:** Another important issue as highlighted by Magnani is the type of capitalism which led Italy to have more difficulties to raise capital to launch energy communities projects. A dualism in the capitalist system led difficult the development of these projects. since solar panels owners are isolated and many Italian families are not able to raise funds especially in the South of Italy, despite it is in this place that we can find the highest potential for these projects. In 2021, the median income before social transfers (pensions included in social transfers) is 18K€ in Belgium and 10K€ in Italy, with inhabitants of the Mezzogiorno have a level of income reaching only 60% of people living in the center-north of Italy. As a result, Belgium has one of the lowest inequality and energy poverty levels among European countries, while Italy has one of the highest: in particular, the risk of poverty or social exclusion concerns about 20.7% of Belgium’s inhabitants against the 30% of Italy’s. In addition to this, according to the EU Energy Poverty Observatory (EPOV), in 2018, 5.2% of people in Belgium could have not kept their homes adequately warm, while that was the case for 14.1% of people in Italy. A solution could be the development of collaborative governance but this philosophy is not really present in Italy compared to the Central and Northern countries when private companies, having the financial means to develop renewable installations choose to do it, civil society is oft not included, even worst in the South where the mafia could be oft included.

25. **Network:** Then, Ecopower has been the chairman of Rescoop since its creation and participle to REScoop Vlaanderen with 24 members, representing 75,000 citizens (on 6.7 million inhabitants). The development of energy communities projects is also strongly pushed by Research and Innovation programs and pilot projects (RE/SOURCED, Antwerp Circular South,

cVPP and Rolecs). In Italy there is no network specifically dedicated to energy communities but larger as Legacoop or Italia Solare to gather these initiatives. However, at the European level, the cooperative ènostra belongs to Rescoop and participates in numerous European projects. For instance, the cooperative has developed 46 partnerships, with 30 local projects and 16 national projects (Relazione degli amministratori ènostra, 2021).

Table 2.1: Comparative case Ecopower-ènostra

	Ecopower	**è nostra**
Identity card		
Date of creation	Created in 1991	Created in 2014
	Energy supplier since 2003	Fusion in 2018 with Retenenergie to become also energy supplier
Number of shareholders	64.114 shareholders	9806 shareholders
Production in 2021	80 million kWh	1 million kWh
Number of installations	70 big solar and 270 small solar, 28 wind power, 1 biomass, two heat districts and 3 hydropower installations	11 solar and 1 wind power installations
Stade of developement	Already at the state of **incumbent**s with a strong perspective of growth	Still a **niche** but in a country with an important potential since 130 000 initiatives could be created in the next years.
Market logic	**Strong:** Rentability of the model already been proved, with Ecopower being the lowest energy supplier and distributing high dividends (16 M d'€)	**Low:** Few financially attractive with market prices of energy and no dividend. But things begin to change with the introduction of a prosumer tariff and positive financial results for the last two years.
Factors impacting their development		
Culture	Interest in the third sector on this issue with more than 17 cooperatives already created in Flanders and51 an awareness in the general population regarding climate issues	Few interests coming from cooperative sector but also general population regarding climate issues Gender issues
Network	**Strong** at local, national and e51uropean level	**Lack of local network** to gather good practices and support new initiatives
Legislation	Stable and encouraging	Blurred bureaucracy and uncertainty Risk of lacking support with the new directive and the notion of proximity leading to question the pertinence of the model and the possibility of going towards regionalization of this organization
Capitalist system	Accumulative, less unequal and more collaborative	Dualist and lack of collaborative layouts

2.3. Data collection and sample

2.3.1. French energy communities

26. For the first chapter, relative to the case of France, I rely on a new dataset produced by Energie Partagée Association which gathers the financial data of the projects belonging to this organization and a large part of energy communities's projects in France. All initiatives belonging to Énergie Partagée have signed a charter which guarantees local outcomes, an open governance, ecological requirements and a non-speculative approach,[5] corresponding to the philosophy of energy communities as defined in academic literature and policy documents (Bauwens, Vaskelainen, and Frenken 2022; Hicks and Ison 2018; REScoop.eu 2018; Walker and Devine-Wright 2008). The dataset includes information about the RE installed capacity of projects, their financial budget, their capital structure and the amount of local, regional, national and European subsidies they received. To gather this data, Énergie Partagée Association launched a survey among its members, in which it asked about the main financial and technical characteristics of their initiatives. From a total of 300 members, the data included descriptive and financial information about 283 projects, from which 164 were complete and exploitable.

27. Moreover, a survey was launched in June 2020 and stayed open until September 2020: the aim was to examine the community logic of this project to identify if the state and the market objective interfere showing that far from being only led by community issues, market and state objectives were also present. The variables will be explained in detail in chapter 1. Of the 164 projects, 19 exploitable answers (11.93%) have been collected, which is in line with the average response rate in the case of an online study without incentives (LaRose and Tsai 2014). This dataset is complemented by qualitative data collected on various websites of several energy communities belonging to Énergie Partagée, as well as by conducting qualitative interviews with individuals participating in some of the projects studied. In total, we collected notes on 14 different websites and conducted 10 interviews (see Table 2.1). The objective of this qualitative data is to complement the quantitative analysis by providing a more in-depth understanding on the functioning of the different types of energy communities, including the major challenges that they face.

[5] See https://energie-partagee.org/wp-content/uploads/2015/11/charte-energie-partagee.pdf

Table 2.2. List of interviews.

Interview number	Organisation	Function
1	Les Ailes de Taillard	Executive of Total Quadran
2	Les Ailes de Taillard	Shareholders
3	Les Ailes de Taillard	Shareholder
4	Coopérative citoyenne du Lac	Executive committee
5	ECLR Occitanie	Regional facilitator (member of Energie Partagée's network)
6	Réseau Gecler	Regional facilitator (member of Energie Partagée's network)
7	Energie Partagée	Regional facilitator (member of Energie Partagée's network)
8	Cirena	Regional facilitator (member of Energie Partagée's network)
9	ECLR	Regional facilitator (member of Energie Partagée's network)
10	Energie Partagée	Executive committee Director of of Energie Partagée Investissement

2.3.2. Ecopower and ènostra

28. For the comparison between Belgium and Italy, instead, my survey was launched at the beginning of 2021 and was made available for one month on the European survey platform (https://ec.europa.eu/eusurvey/home/welcome), a new tool proposed by the European Commission to conduct surveys. As justified before, it has been asked to the shareholders through the newsletter of two central energy communities in the European Union, ènostra (Italy) and Ecopower (Belgium), to answer a set of questions. The questionnaire was based on a previous literature review regarding energy citizenship, justice, and women. However, this review remains limited in its scope, since the concept of energy justice and citizenship are still under-conceptualized when discussing energy communities; moreover, few works investigate the underrepresentation of some social categories (e.g., women) in these organizations. Therefore, this work remains exploratory. Finally, I also benefitted from the strong support offered by Sara Capuzzo, president of ènostra, and Sara Golessi, European project manager for ènostra.

29. The survey has been written in Italian and translated in Dutch by Camille Meeus, working for the cooperative Ecopower. The questionnaire was divided into nine parts in order to frame the different dimensions of energy democracy and justice.

- **Socio-demographic characteristics:** Age, gender, profession, income, field, and level of study and occupation.
- **Motivations to join the cooperative:** Altruist (caring for climate and social issues) or instrumental (profit).
- **Understanding of energetic issues:** a self-assessment of shareholders regarding their capacity to understand energy issues.
- **Energy justice:** questioning the shareholders on the importance given to the fairness of the process and its outcomes.
- **Gender stereotypes and gender bias:** questioning the shareholders on their inclusive views and the place they give to women in energy issues.
- **Effective participation:** participating to the different activities and, if not, why.
- **Interaction between members:** number of interactions between shareholders.
- **Sustainable behaviours:** questioning the shareholders about their daily practices.
- **Empowerment:** assessing if the cooperative has allowed gaining in competence and awareness regarding energy issues.

30. Respondents' specific statements will be described in detail in the empirical chapters. To avoid bias and identify respondents in the case of people not living alone or where another member of the family could have answered the survey in their place, a first question asking who in the household has decided to join the cooperative has been added. For ènostra in particular, questions regarding the possible impacts deriving from having a woman as president have been added.

31. For this study, from Ecopower, 5387 answers were collected, of which 5114 exploitable; for ènostra, instead, 288 exploitable responses were collected out of 300 – the relative answer rate is in line with the average for online surveys without incentives (LaRose and Tsai 2014). The global sample gives already an idea how energy justice is important to focus on. Indeed, it is composed of 22.14% of females and 77.86% of males. People with a university degree in humanities are also the most represented (50.37%) while people in STEM are 24.47%; those with a high school diploma or below, represent instead 21.84%. Higher social positions are also

overrepresented, while workers are absent from these initiatives, this sample confirms previous studies on the weak presence of low-income people. Therefore, unsurprisingly, among these, people with the highest income are the most present since 81.49% of respondents have an income superior to the median income of their belonging country. The following table presents the socio-demographic differences found between the two countries. If the socio-economic characteristic between both countries is pretty similar, two differences should be noticed regarding the gender variable: women represent 43% of ènostra shareholders while they are only 21% for Ecopower. People in ènostra also tend to have a lower educational level.

Table 2.3*:* Sample distribution

Ecopower

Variable	Obs	Mean	Std.dev	Min	Max
Income	4,727	3.154	0.626	1	4
occupation	4,714	2.493	1.857	1	6
Seniority	4,605	1.054	5.858	1	30
Age	5,114	3.920	1.246	1	6

Ènostra

Variable	Obs	Mean	Std.dev	Min	Max
Income	243	3.152	0.811	1	4
occupation	260	2.361	1.646	1	6
Seniority	286	3.940	2.975	1	15
Age	288	3.631	0.123	1	6

Gender:

Gender	Ecopower	Ènostra	Total
Women	1,071	125	1,196
Men	4,043	163	4,206
Total	5,114	288	5,402

Field of study:

Field of study	Ecopower	ènostra	Total
High school or below	1,064	116	1,18
Degree or above in STEM	2,609	112	1,322
Degree or above in humanities	1269	53	2,721
Total	4,942	281	5,223

32. The variable "*cooperative*" is operationalized as follows: merging the dataset I got from *Ecopower* and from *ènostra*, a new variable was created where 0 stands for those belonging to *Ecopower* and 1 for people in *ènostra*. The variable size has been operationalizing considering the year were ènostra and Ecopower got the same size (2006): and two groups have been created: the first before to reach the same size level and the other after reaching it to identify. Moreover, the maturity of these initiatives has been used to consider how the last cohorts of shareholders is behaving, especially for ènostra at a time where their model begin to become considered as a serious alternative. Since this study remains explorative in its nature, income, gender, and field and level of study are used as control variables for all analyses. Gender was coded as a dichotomous variable (0 man / 1 woman) as well as income (above or below the national median income). It is supposed that women and low-income people might focus more on the justice issue than men and those who have more resources. The field and level of study is, instead, a categorical variable divided into three categories: high school diploma or below, degree in STEM, degree in humanities. For seniority either it has been used as continuous variables or when comparing both cooperatives in categorical variable: less and more than 5 years for ènostra and less and more than ten years for Ecopower.

2.4. Statistical technics

33. Regarding the Data, different technics will be used.
34. For the third chapter (**paper 1**), we choose first with my co-authors to conduct a cluster analysis to identify the different patterns of projects (Mooi, Sarstedt, and Mooi-Reci 2018; Saxena et al. 2017). From this, four main configurations have emerged. We decide thus to

pursue this analysis by a multiple correspondence analysis as it will explaining more in details in the methodology of the first chapter (Ayele, Zewotir, and Mwambi 2015; Greenacre and Blasius 2006; Hoffman and De Leeuw 1992). The responses got from the online survey are distributed as follows: 9 for Cluster 1; 7 for Cluster 2; 1 for Cluster 3; and 2 for Cluster 4. Indicators were based on a 3-Likert-scale asking about: the local anchorage of the project; its way to include citizens; its market orientation; and, finally, its support from the state for each institutional logic has been built with multiple correspondence analyses. Moreover, we choose to conclude this study by adopting a more qualitative perspective as shown by the Table 2.2 with ten semi-structured interviews realized with the main actors in the field.

35. For the fourth, fifth, sixth chapters we used a comparative design, developed logit and ordered logit for each independent variables where I compare the situation differs in both organisations thanks to a t-test. Regarding the assumptions of the models (ordered logit), the observations are independent. The assumptions of independence of errors and the lack of strongly influential outliers have been checked (linktest and scatterplot in Stata 2015). The problem of correlation and collinearity between variables have been verified through the matrix of correlation (spearman option in Stata 2015) and the package collin. For the ordered logit models, the assumption of parallel lines assumption, since often violated by the data by running a Brand Test, has been checked. When this assumption is not met, the gologit2 has been used, since instead of other solutions as multinomial logistic regression, it allows to relax the proportional odds assumption for some variables while maintaining it for others and is thus more parsimonious and less difficult to interpret than the multinomial logistic regression (Williams 2016). Then the last chapter, adopting an intersectional perspective, only focus on Ecopower since the reduced sample of è nostra has not allowing me to have significance in my model, even if the pattern appear quite similar and could be a base for further research. Table 2.3 summarizes the quantitative techniques used for each research question.

Table 2.4: Statistics technic

Summary of the different statistics technic used in this thesis		
Chapter	**Research question**	**Analysis**
3	Which institutional logics shape the governance of energy communities?	Cluster analysis and Multiple correspondence analysis
4	To what extent is energy citizenship present in both cooperatives? Are instrumental and social and environmental motivations playing a role on the level of energy citizenship in these organizations?	Ordered logit and gologit -Creation of Index (Cronbach alpha)
5	Are recognitional aspects of energy justice considered an important issue by energy communities' shareholders? Are shareholders more caring for energy justice in Italy?	Ordered logit and gologit 2-Creation of Index (Cronbach alpha)
6	Are negative gender stereotypes about women and energy present in energy communities? Do we observe gender bias in women participation? Are gender stereotypes and bias correlated to the women's presence in these cooperatives?	Ordered logit and gologit 2-Creation of Index (Cronbach alpha)
7	Are inequalities intersectional in the energy community?	Logit and ordered logit

Source: Constructed by the author

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Chapter 3: Paper 1: A typology of community-based energy citizenship: an analysis of the ownership structure and institutional logics of 164 energy communities in France

Abstract

For the chapter 3, which represents the first paper discussed in this thesis, I choose to focus on the constitutional level of collective actions initiatives since as explained in the introduction, in a strategic field as renewable energy, it is not taken for granted that citizens would be really at the core of these initiatives. Therefore, one first aim of this thesis was to better frame the configuration of these projects, relatives to the actors involved and the place given to citizens in order to better understand how energy communities could fit with a democratic design.

Energy scholars have frequently associated energy communities with the concepts of energy citizenship and energy democracy, given the critical role of citizen participation and democratic governance in their organizational models. However, in recent years, this role has been challenged by the growing involvement of diverse actors, including small and medium businesses, corporations and local authorities, in the governance of energy communities. However, there is limited evidence of how this evolution has impacted the form and degree of citizen engagement in these organizations. This paper addresses this gap through a cluster analysis of 164 French energy communities. It identifies four energy citizenship configurations: full citizen ownership, shared citizen ownership, citizen crowdfunding and civic participation. We analyze the ownership structure and institutional logics of these configurations. Our results show that, despite the recent diversification of actors involved in energy communities, models characterized by strong citizen involvement in the ownership and a strong community logic dominate the French energy community landscape. Furthermore, the community logic is still prominent, even in models in which citizens are less central. This suggests that the increasing involvement of other actors in energy communities does not fundamentally threaten this organizational form as a vehicle for energy citizenship.

Keywords: energy citizenship; energy communities; energy democracy; renewable energy; energy transition; France

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3.1. Introduction

1. The development of renewable energy (RE) sources in recent years has significantly changed the energy landscape, with a rise in local and small-scale low-carbon technologies (Alanne and Saari 2006; A. Berka and Dreyfus 2021). This evolution has unlocked the possibility for new actors, such as local citizens and energy communities, to participate in energy production (Bauwens, Gotchev, and Holstenkamp 2016; Hewitt et al. 2019; Wyse and Hoicka 2019). Energy communities are initiatives where citizens come together to tackle diverse aspects of low carbon energy transitions, including the development of projects to generate heat and power from RE sources (Bauwens 2019). They have played central roles in mobilizing financial capital for the transformation of energy systems in several countries, such as Germany, Denmark, Austria, Sweden and the Netherlands (Kooij et al. 2018; Mey and Diesendorf 2017; Pons-Seres de Brauwer and Cohen 2020; Yildiz 2014), and may also contribute to the local acceptance of RE projects (Bauwens and Devine-Wright 2018; A. L. Berka and Creamer 2018). These entities currently represent, in the European Union, over 2,500 initiatives (Wierling et al. 2018) and are expected to involve, in 2050, up to 37% of European citizens (Kampman, Blommerde, and Afman 2016).

2. Many proponents of energy communities argue that, in addition to fostering RE development, they have a pivotal role in cultivating energy citizenship and energy democracy (Devine-Wright 2007; Wahlund and Palm 2022). The concept of energy citizenship has been coined to move beyond the conceptualizations of people in energy systems as “users'' or “consumers” (Devine-Wright 2007; Islar and Busch 2016; Ryghaug, Skjølsvold, and Heidenreich 2018). This view rests on the assumption that energy communities primarily rely on the voluntary resources of highly motivated and locally-based citizens. Energy democracy is a concept developed by activists and, increasingly, academic scholars. It refers to a concern about who controls the means of energy production and distribution (Szulecki and Overland 2020). While both concepts differ in various ways (Wahlund and Palm, 2022), they share the aspiration of an energy system characterized by increased citizen participation in energy governance and policy (Szulecki 2018; van Veelen and van der Horst 2018).

3. While the literature on energy democracy and energy citizenship attribute to citizens a central role to play in energy communities, in recent years, a diversity of actors with heterogeneous motivations have become increasingly involved in such organizations,

including small and medium enterprises, large corporations and local authorities. Arguably, this evolution may have important implications for energy citizenship and energy democracy, as it can lead to forms and degrees of citizen participation that differ from the normative notion, often implied by these concepts, of renewable installations fully owned and self-managed by a local community of highly motivated and well-informed citizens. In the worst-case scenario, it could jeopardize the democratic potential of these initiatives, with the risk of marginalizing citizens in energy communities. To the best of our knowledge, however, how these changes have affected citizen engagement in energy communities has not been empirically analyzed so far.

4. The aim of this article is to address this research gap by studying how the involvement of a heterogeneity of actors in the ownership and governance of energy communities has impacted the form and degree of citizen engagement in these organizations. The contribution of this paper is twofold. First, while studies on energy citizenship and energy democracy have so far been mainly conceptual or based on small-N qualitative case studies (e.g. Goedkoop and Devine-Wright, 2016; Veelen, 2018), we contribute to this literature by offering the first large-N (N = 164) quantitative analysis on this issue, as far as we are aware. Second, the literature on energy citizenship has so far not systematically explored the different citizen participation models in energy communities. We address this gap by providing an empirically-based typology of different models of energy citizenship in energy communities.

5. We examine these issues through the theoretical lenses of institutional logics, addressing the following research question: *which institutional logics shape the governance of energy communities?* Institutional logics are “the socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality” (Thornton and Ocasio 1999, 804). Previous literature has identified three institutional logics as most relevant to energy communities: community, state and market (Aiken 2015; Bauwens, Vaskelainen, and Frenken 2022; Wittmayer et al. 2020). The presence of these three institutional logics may partly be explained by the aforementioned involvement of new actors in energy communities: while citizens may typically be associated with a community logic, local authorities are associated with a state logic and commercial actors, such as SMEs and corporations, are associated with a market logic (Wittmayer et al., 2020).

6. We study the case of France, where the number of energy communities has been growing steadily. Between 2016 and 2019, energy communities belonging to the umbrella organization "Énergie Partagée" more than doubled their total energy production (from 82 to 200 GWh), increased their total capital by over 50% (from 12 to 20 million euros) and the number of their shareholders by over 20% (from 4,820 to 5,947 members; (Energie Partagée 2020; 2017). However, while much attention has been paid in the literature on energy communities to frontrunning countries such as Germany (Holstenkamp and Kahla 2016), Denmark (Mey and Diesendorf 2017) and the UK (A. L. Berka 2018), French energy communities have been relatively understudied so far (Sebi and Vernay 2020). We perform a cluster analysis, relying on an original dataset providing information about the ownership structure of 164 energy communities. We complement this with a multiple correspondence analysis based on indicators of different institutional logics collected through a survey sent to a sub-sample of energy communities belonging to Énergie Partagée.

7. Our results highlight four models of energy citizenship in energy communities characterized by diverse ownership configurations, as well as varying forms and degrees of citizen participation: the full citizen ownership, the shared citizen ownership, the citizen crowdfunding model and the civic participation model. Findings show that the full citizen ownership model, characterized by the highest degree of citizen involvement, represents the largest share of the projects in our sample, suggesting that citizens still hold a central role in the development of French energy communities. Our results also highlight that hybrid models (shared citizen ownership, citizen crowdfunding and civic participation), which reflect diverse ownership and governance arrangement among citizens, commercial actors and local authorities, have become increasingly prominent in recent years. However, hybrid configurations still present major traits of the community logic and, therefore, do not necessarily challenge the role of energy communities in fostering energy citizenship and energy democracy. The next sections present the theoretical framework used in this study , the methods employed, the data analysis, the discussion of the findings and some concluding remarks.

3.2. Theoretical Framework

3.2.1. Energy communities, energy citizenship and energy democracy

8. While the notion of "community" in the context of energy systems is intrinsically polysemous (Bauwens et al. 2022), it has often been understood as a specific type of social relations characterized by a collective form of governance and an equitable access to decision-making-process and outcomes (Hicks and Ison 2018; Walker and Devine-Wright 2008). Energy communities often adopt purpose-oriented organizational forms, such as the cooperative form, that serve the economic, social or cultural needs of their members and present a democratic governance structure involving equal individual voting rights. Through such democratic governance, energy communities may contribute to their members' active participation in and increased awareness of energy-related issues. Accordingly, energy communities could allegedly transform regular consumers into active citizen prosumers willing and able to engage with energy transitions and to foster energy citizenship in associative, deliberative and material democratic ways (Burke and Stephens 2017; Szulecki 2018).

9. Because of these characteristics, many scholars have considered energy communities as an ideal form of energy citizenship and energy democracy (Strachan et al. 2015; Vansintjan 2015). The energy citizenship literature holds that, in the energy system, citizens should not be limited to their roles as users or consumers but rather take an active role through political engagement, participation in protest and support movements (Fast 2013), and engagement in (collective) prosumerism (Campos and Marín-González 2020; Kotilainen and Saari 2018). It also stresses the importance of citizen awareness of responsibilities for climate change, energy justice and the potential of collective energy actions (Campos and Marín-González, 2020). Energy democracy has been characterized by the three following dimensions: 1) the civic (i.e. citizen, cooperative, community and municipal) ownership of power generation and transmission and distribution infrastructures, 2) a popular sovereignty, in which citizens are recipients of energy policy, stakeholders (producers and consumers) and accountholders, and 3) a participatory governance of energy systems through inclusiveness, transparency, access to information, energy education and awareness raising (Szulecki 2018).

10. Alongside citizens, various other actors, especially local public authorities and private commercial developers, have increasingly been involved in energy communities in recent years. This variety of actors reflects a heterogeneity of motivations and interests (van Veelen and Eadson 2020). For commercial developers, engaging with energy communities might bring alternative sources of finance and risk sharing during project development. Actively

engaging with communities might be an objective in itself for some companies, as well as to reduce the risk of public objections to their projects, thereby increasing the prospect of securing planning consent (Goedkoop and Devine-Wright, 2016). For authorities, partnering with communities can help them achieve their decarbonization objectives. Crowdfunding platforms have also developed and acted as intermediaries between developers and citizens willing to support the development of RE without being directly involved in their governance (Bourcet and Bovari 2020).

11. The literature on energy communities distinguishes between different ownership models depending on the type and influence of actors involved. A distinction is drawn between community-owned models, in which local communities of citizens fully own the production assets, and shared ownership models, which entail a long-term legal relationship between a local community and a commercial developer or a public entity (Goedkoop and Devine-Wright, 2016; Strachan et al., 2015). Energy democracy scholars have also advanced the concept of "civic ownership" (Szulecki, 2018), defined by (Hall et al., 2016) as comprising municipal ownership of energy systems, in addition to citizen, community and cooperative ownership. According to the authors, it refers to a territorial entity, a town or a city, and its administration (the municipal). The term seeks to address a critique often raised about energy communities, namely the homogeneity of community membership in terms of socio-economic class and the resulting lack of inclusiveness of these projects.

3.2.2. Institutional logics in energy communities

12. To understand the resources and governance practices deployed in energy communities, we employ the theoretical lenses of institutional logics. Institutional logics refer to the sets of rules, values and conventions that inform decision making within organizations (Lounsbury 2007). Beyond describing how an organization functions, institutional logics create expectations on which behaviors are acceptable and provide legitimacy and identity to the organization (Thornton, Ocasio, and Lounsbury 2012). Thornton et al. (2012) suggest seven typical institutional logics: family, religion, state, market, profession, corporation and community. Literature highlights that some organizations are hybrid; that is, they present traits of different institutional logics, which can create tensions as different institutional logics may be associated to competing norms and expectations (Bauwens, Huybrechts, and Dufays 2020; McMullin and Skelcher 2018).

13. This approach is particularly appropriate for studying energy communities, since they typically have to negotiate the tensions between sustaining themselves in financial and mission terms and addressing the expectations of a variety of stakeholders in their operating environment. For the purposes of our study, we focus on the community, state and market logics, as recent literature on energy communities regards these as most relevant for these organizations (Wittmayer et al. 2020). The community logic emphasizes the existence of a group of individuals with strong social ties who share geographical belonging or a common set of values and objectives and whose relationships are based on trust and reciprocity (Thornton et al., 2012). It stems from group membership, which usually includes explicit elements such as rules and practices, as well as non-verbalized principles that are commonly agreed upon. The market logic emphasizes the motivation of financial gains and efficiency through selling goods and services. The state logic emphasizes democratic participation and the redistribution of resources through bureaucratic channels to increase community welfare.

14. Energy communities are typically embedded in these three logics to some extent, which have led various scholars to consider them as hybrid organizations. First, they are strongly embedded in the community logic, especially in the initial stages of their development, as they mobilize resources through pre-existing social networks within the local community and involve individuals who share common beliefs and values (Bauwens, Vaskelainen, and Frenken 2022). Second, they often resort to practices and strategies stemming from the market logic to attract the resources and external support necessary for their survival and growth in a competitive business environment (Bauwens, Vaskelainen, and Frenken 2022). Third, they usually benefit from subsidy schemes in the context of public support for RE development (Inês et al. 2020).

3.2.3. Operationalizing institutional logics

15. Institutional logics are defined by the rules, formally recorded regulations, procedures, laws and practices (i.e. the informal rules corresponding to recurrent behaviors) that constrain and enable actors within institutions. A first indicator of the prevalence of different institutional logics is the presence of different actors in the ownership structure of organizations. The involvement, in the ownership, of local community members signals the presence of the community logic, as one can expect citizens joining energy communities to pursue objectives such as community agency in energy-related issues. The presence of

commercial actors in the ownership reflects a market logic, as their motivations are primarily financial and they typically seek to achieve some return on investment. Finally, the involvement of public authorities in the ownership of organizations may reflect the state logic, as this involvement is typically attached to formal rules and bureaucratic processes.

16. In addition to the ownership structure, prevailing rules and practices may indicate the prevalence of specific logics. In terms of rules, the community logic displays a framework that ensures that the organization serves the community needs (Reay, Jaskiewicz, and Hinings 2015). This can be achieved through a democratic decision-making process that enables community members to hold direct control over the organization.[6] In energy communities, this process is often guaranteed by adopting a cooperative form (or a similar organizational form) following the 'one person-one vote' rule instead of the 'one share-one vote' rule in capitalist corporations (McMullin and Skelcher, 2018). In terms of practices, frequent and personal interactions between community members characterize the community logic (Weber 1978). These interactions are typically enabled by the holding of regular face-to-face meetings which create space for participation and deliberation and allow the development of trust (Szulecki 2018; Venkataraman et al. 2016). A second characteristic is community engagement (Arena, Azzone, and Mapelli 2018) which can materialize through volunteer work (McMullin and Skelcher 2018) or activities aimed at raising awareness, spreading knowledge and enhancing local citizens' agency (Arena, Azzone, and Mapelli 2018; Lee and Lounsbury 2015; Venkataraman et al. 2016), such as talks in schools or during local events, as well as the organization of visits of the energy projects' installations for neighboring residents.

17. In terms of rules, the market logic displays a normative framework that protects individuals' freedom to pursue their economic interests (Campbell and Pedersen 2001; Zhao and Lounsbury 2016). This can manifest under the form of contracts and performance targets (McMullin and Skelcher 2018) or a favorable investment environment. In energy communities, short-term investments may signal an interest in rapid profitability, reflecting a stronger market logic. Regarding profitability expectations, a high return on equity reveals that investors are primarily driven by a desire to obtain financial return. In terms of

[6] Although some scholars have used democratic voting as a rule linked to a state logic, we follow Thornton et al's (2012) conceptualization of institutional logics and understand the state logic as one emphasising centralisation of decisions, hierarchy and bureaucratization. The community logic, on the other hand, emphasizes agency and community members' decision-making power, which is fostered by democratic voting rules.

practices, the market logic manifests through the emphasis on transactions and the ambition to accumulate financial and physical capital (Venkataraman et al., 2016; Zhao and Lounsbury, 2016). In energy communities this may be indicated by the intention to grow the stock of financial and physical capital and attract new customers (Bauwens, Vaskelainen, and Frenken 2022).

18. Finally, rules are an important marker of the presence of state logic, which puts an emphasis on the need for standardization and the creation of operating norms. In the case of energy communities, the state logic is reflected in the set of criteria attached to the public subsidies they receive. For example, in France, one of the most important policy mechanisms for the development of energy communities is the feed-in-tariffs (Sebi and Vernay 2020). Feed-in-Tariffs ensure stability with long-term contracts and a higher price per Kwh for renewable energy production. To benefit from them, energy communities have to comply with standardized norms in terms of size of the projects. Specifically, only projects with an installed capacity inferior to 100 Kwc are eligible to the feed-in-tariff (Sebi and Vernay 2020). In addition, the development of local shareholding has been strongly influenced by the implementation of the "bonus participatif" in France (Rüdinger 2019).[7] According to the literature on institutional logics, the state logic primarily manifests through formalized rules and processes and less so through informal practices (Zhao and Lounsbury 2016).

3.3. Data and methods

19. To assess the strength of different institutional logics in energy communities, we adopted a mixed methods approach to data collection, combining a cluster analysis performed on a statistical dataset, a multiple correspondence analysis based on a quantitative online survey conducted from June to September 2020, and supplementary qualitative interviews.

3.3.1. Cluster analysis

20. The cluster analysis was based on a statistical dataset provided by Énergie Partagée, a French umbrella organization gathering most energy communities in France. This organization is composed of two entities: a non-profit organization ("Énergie Partagée Association") supporting the development of energy communities thanks to a network of

[7] The "bonus participatif" is a support mechanism provided by the French government for projects directly involving citizens in the governance of their projects: 3€/MwH. Since 2020, it has been replaced by a bonus of 5 points when the state rates and evaluates renewable energy projects during the bid calls.

local representatives, and an equity crowdfunding platform ("Énergie Partagée Investissement"), which offers citizens to become shareholders of energy communities. All initiatives belonging to Énergie Partagée have signed a charter which guarantees local outcomes, an open governance, ecological requirements and a non-speculative approach,[8] corresponding to the philosophy of energy communities as defined in academic literature and policy documents (Bauwens, Vaskelainen, and Frenken 2022; Hicks and Ison 2018; REScoop.eu 2018; Walker and Devine-Wright 2008). The dataset included information about the RE installed capacity of projects, their financial budget, their capital structure and the amount of local, regional, national and European subsidies they received. To gather this data, Énergie Partagée Association launched a survey among its members, in which it asked about the main financial and technical characteristics of their initiatives. From a total of 300 members, the data included descriptive and financial information about 283 projects, from which 164 were complete and exploitable.

21. The cluster analysis enabled us to group together initiatives in this dataset with similar characteristics, based on their ownership structure (Saxena et al. 2017). We used a general agglomerative hierarchical clustering procedure, the so-called Ward's method, as it was appropriate for our sample size (Ward 1963). If there are N observations to cluster, this procedure begins with N clusters consisting of one observation each, searches the most similar pair of clusters, merges them and reduces the number of clusters by one. These steps are performed until all clusters are merged and only one is left. The Ward objective is to find at each stage the two clusters whose merger gives the minimum increase in the total error sum of squares (Mooi, Sarstedt, and Mooi-Reci 2018). The procedure stops at the optimal number of clusters as determined by the Duda and Hart index (Duda, Hart, and Stork 2000).[9] To identify the ownership structure of the projects, we used five variables: the share of local citizen capital, the share of non-local citizen capital, the share of capital brought by equity-crowdfunding investors, the share of capital owned by public entities and the share of capital owned by commercial actors.

[8] See https://energie-partagee.org/wp-content/uploads/2015/11/charte-energie-partagee.pdf

[9] The Duda and Hart index is the sum of squares in the two clusters, divided by the sum of squares in the combined cluster.

3.3.2. Multiple correspondence analysis

22. We supplemented this cluster analysis with a multiple correspondence analysis (Hoffman and De Leeuw 1992), relying on data collected through an online survey, in which we asked managers of energy communities about rules and practices in their projects. Out of the 164 contacted in total, 19 organizations participated in the survey. This 11.93% response rate averages that obtained in similar online studies without financial incentives (LaRose and Tsai 2014). Based on the answers provided, a composite indicator was constructed for each institutional logic. Composite indicators are used to combine several manifestations of a phenomenon into a comprehensive single index. Composite indicators have been used in the study of various topics within the energy social sciences (see Drago and Gatto, 2022; Kelly et al., 2020; Lan et al., 2022; Nanduri et al., 2002) to measure complex phenomena with different facets (Kuc-Czarnecka, Lo Piano, and Saltelli 2020; Saltelli 2005). Each indicator is composed of three items, corresponding to one question of the survey. For each item, the value 0 was attributed to a project if the rule or practice considered was absent or 1if it was present.

23. To measure the prevalence of the community logic in energy communities, respondents were asked about: 1) the prevailing decision-making rule in the annual general meeting, with the assumption that the one person, one vote rule signals the presence of the community logic, as it aims at ensuring that all shareholders are equally important in the decision-making process; 2) the frequency of face-to-face meetings among members, under the assumption that holding frequent meetings fosters community feelings and engagement among members; 3) the use of volunteer work, as it reflects a reliance on non-commercial, community resources (McMullin and Skelcher 2018).

24. To measure the prevalence of the market logic, respondents were asked about: 1) the expected return on investment, with a return higher than 2% (the inflation rate at the time of the survey) being considered as a signal of a strong market logic; 2) the time horizon for return of capital, with the assumption that short-term investments (i.e. less than five years) reflect a stronger market logic; 3) the willingness to grow, with the assumption that a stronger willingness to grow reflects a stronger market logic.

25. To measure the prevalence of the state logic, respondents were asked two questions aimed at evaluating the importance of subsidies in their projects, with the assumption that the

heavier the dependence of projects on subsidies, the stronger the state logic, as each subsidy program comes with a set of standards, criteria and rules to follow. Respondents were asked about 1) the presence of funds coming from some public subsidy program and 2) the percentage of subsidies in the total budget of the project. Finally, we asked respondents about whether the project benefits from feed-in-tariffs and we consider that benefitting from this kind of public mechanisms signals the presence of the state logic.

3.3.3. Qualitative interviews

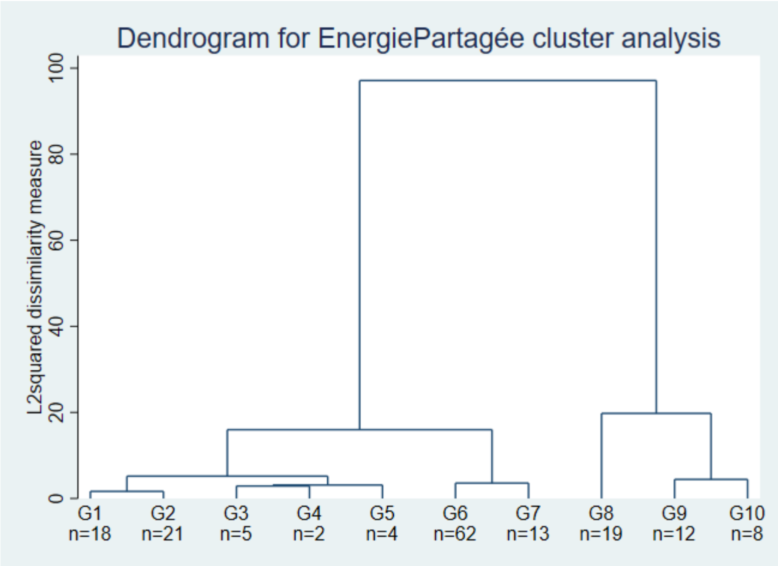
26. Finally, qualitative data was collected through ten semi-structured interviews with key stakeholders in some of the organizations studied. The purpose of these interviews was to gain further understanding of the organizations' context, strategies and operating rules in order to explain and interpret some of the findings of the statistical analyses. Presented alongside the data from the statistical dataset and the online survey, these interviews provide a means of data triangulation. Potential interviewees were identified and recruited through a "snowballing" technique. Initial participants were recruited within the network of one of the authors of 0this study. The themes discussed during the interviews included the context and the governance structure of organizations, their prevailing rules and practices and the challenges faced in attempting to combine institutional logics. During interviews, interviewees connected us with further individuals to interview. Interviews, which lasted between 45 and 60 min, were conducted face-to-face or via telephone and Skype. All interviews were audio-recorded and transcribed. Details of the interviews are provided in Table 2.1.

3.4. Results

3.4.1. Cluster analysis

27. The cluster analysis provides an overview of types of energy communities in France, through the graphical representation of a dendrogram. In our case, the dendrogram, confirming by the Duda–Hart index stopping rule, shows that energy communities in France fall into four clusters (Duda, Hart, and Stork 2001).

Figure 3.1: Dendrogram of the cluster analysis.



3.4.2. Ownership structure

28. Cluster 1, which represents about 30 % of our observations, includes projects in which citizens are the group that holds the highest share of projects' equity (between 40 and 50%) but share the ownership with public authorities and commercial developers. An example of such shared ownership is the wind farm "Les Ailes de Taillard", initiated in 2008 by local authorities with the direct participation of citizens grouped in an association and the company Total-Quadran. Interviews conducted with representatives in this project highlight mutual benefits for both citizens and the commercial company. On the one hand, citizens have benefited from Total's strong financial and technical expertise; on the other hand, citizens have contributed to mobilizing financial resources, handling administrative tasks and resolving conflicts. For example, they have been able to secure the administrative authorizations to install wind turbines located in military controlled airspace.

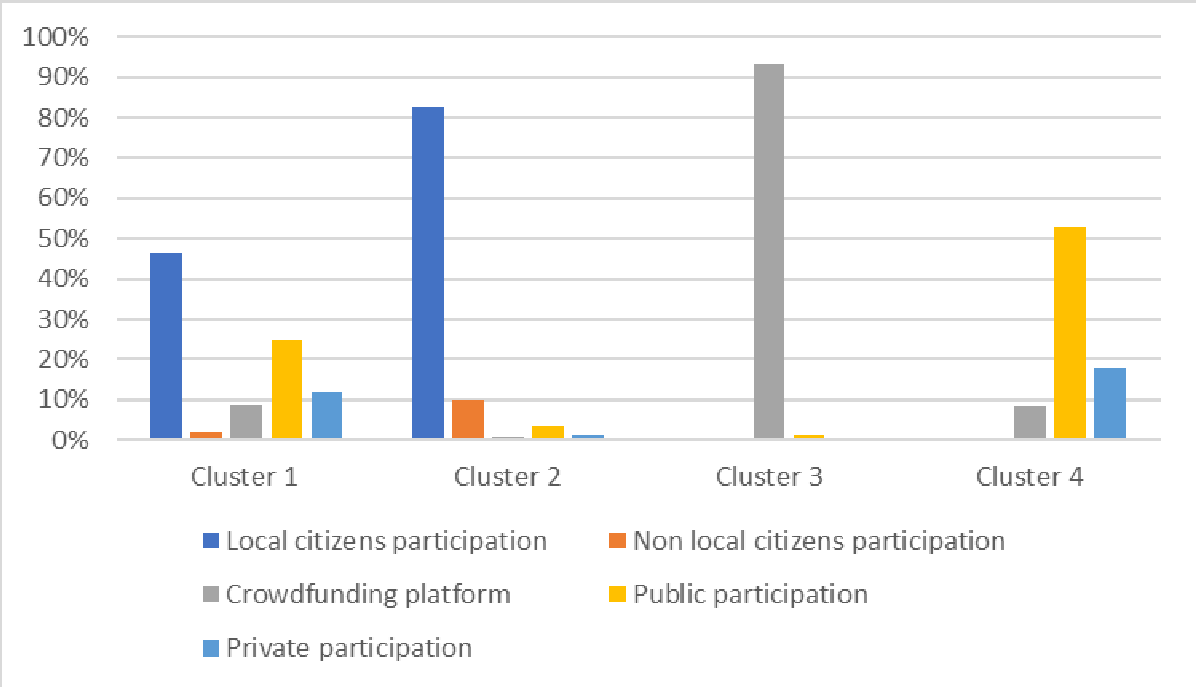
29. Cluster 2, with about 46% of the observations, corresponds to a model of full citizen ownership, as citizens own almost the entirety of the capital shares of the projects in this cluster. More specifically, local citizens (i.e. those residing in the same district) own 80% of the capital shares of the initiatives on average, while non-local citizens own another 10%. An example of this model is provided by the cooperative "La Solaire du Lac", in the area of Annecy, which produces electricity for 78 households from five photovoltaic installations and is entirely owned and managed by local citizens. This cooperative has a council composed of 11 members and working groups with various commissions specialized into

different fields (information technologies, technological and administrative), suggesting that citizens are able to mobilize strong technical competences. Projects in this cluster are also characterized by an emphasis on the environmental dimension, as suggested by the affiliation of 1,200 members of these projects to the think tank “négaWatt”, whose mission is to promote energy sufficiency practices.

30. Cluster 3 includes 11.59% of the observations and corresponds to the model of equity crowdfunding. In equity crowdfunding, investors enter the capital of projects they have selected through an online platform and become shareholders. The platform considered in our study, Énergie Partagée Investissement, has collected 31 million euros and financed 22 projects so far (Interview 10). However, citizen participation in the governance of these projects is only indirect, since citizens are represented by Énergie Partagée Investissement. In Cluster 4, which represents 12.20% of the observations, the main shareholders are public authorities and commercial actors. Similar to cluster 3, citizens are generally not directly involved in these projects and are represented by their municipality choosing to invest in RE projects. In some cases, however, local authorities have initiated the projects and opened its ownership to citizen participation later on. For example, the local authorities of the city of Loos-en-Gohelle, after having invested in solar installations on eight rooftops, have offered the possibility for local residents to financially participate in this project. Today, 120 local households own 75% of its financial capital. As an interviewee points out, however, local authorities might not always open up the ownership of projects to citizens with the objective to encourage citizen engagement in energy issues, but rather to secure an additional source of financial capital: “while more and more local authorities have been seeking to develop energy communities, sometimes it is not for a good reason. In some cases, the reason for this collaboration is mainly financial” (interview 5).

31. Overall, two of the four clusters identified (clusters 1 and 2) correspond to an ownership model in which citizens hold the majority of capital shares. Taken together, these two clusters represent a large proportion (76%) of the total number of projects. Thus, energy communities which resort to citizens for their own funding largely outnumber those who benefit from other funding sources.

Figure 3.2. Ownership structure by cluster



Source: authors.

3.4.3. Technology mix

32. When considering the energy technology mix of the projects, large variations can be observed in the types and the size of technologies developed. Cluster 1, which corresponds to an ownership model shared among citizens, public authorities and commercial actors, is characterized by a large share of wind energy, representing 73% of the total installed capacity of this cluster. The remaining installed capacity stems from solar energy, biomass, hydroelectricity and methanization. Projects in cluster 1 have a median budget of 572,000€ and an installed capacity of 388 kWc, where projects reach a size.
33. In cluster 2, where citizens are the sole owners of projects' equity, the large majority of projects (89%) exclusively develop photovoltaic technologies. In addition, the median size of the projects and the median budget are the lowest compared to the other clusters (188 kW and €248,000, respectively). This suggests that when citizens are the main shareholders of the projects, the latter tend to be smaller-scale. A notable exception relates to wind energy. While wind energy only represents 10% of the projects in cluster 2, local citizens have deployed the largest wind installed capacity across clusters (72 MW). This can be explained by the development of a strong citizen network for the development of wind farms after the launch, in 2002, of the first wind energy project entirely owned by citizens

(named “Begawatts”). This project, which represents a budget of 11,275,000€, of which 16% (1,800,000€) have been brought by citizens, has been pivotal in fostering a movement around community wind, with over 200 projects seeking to replicate this model.

34. In cluster 3, where citizens participation is indirect, the share of solar and hydroelectricity are especially large. Cluster 3, where the equity fund is mostly held by Énergie Partagée Investissement, contains the largest projects, both in terms of median size and budget (720 kW and €2,250,000, respectively). This can be explained by since Énergie Partagée, the entity most specialized in the development of energy communities projects supervised directly their development. Projects in cluster 4 have been one of the two clusters to focus on the development of biomass but also, even having few projects, have developed a large installed capacity in solar and wind energy. Projects in cluster 4 have a median budget of 825,000€ for a median power of 561 kW, also few surprising since public entities generally have more financial resources to invest compared to those led only by citizens.

Table 3.1. Technical characteristics of the clusters.

	Cluster 1	**Cluster 2**	**Cluster 3**	**Cluster 4**	**Total sample**
Number of projects	50	75	19	20	164
Proportion of projects (in %)	30.5	45.7	11.6	12.2	100
Solar installed capacity (kW)	14,366	12,049	52,062	24,485	102,962
Wind installed capacity (kW)	65,600	72,200	28,650	35,500	201,950
Hydroelectric installed capacity (kW)	320	0	622	0	942
Biomass installed capacity (kW)	9,200	0	0	1,500	10,700
Methanisation installed capacity (kW)	489	0	0	0	489
Median budget (euro)	572,000	248,000	2,225,000	825,000	3,870,000

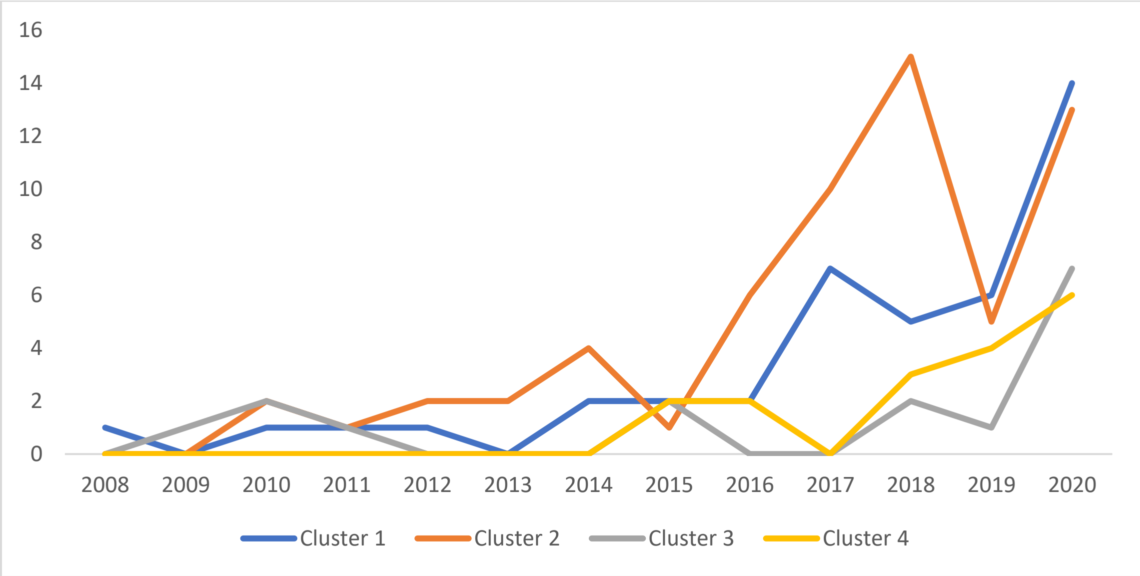
Source: authors.

3.4.4. Evolution of the clusters over time

35. When considering the evolution of the size of the clusters over time (see Figure 3.1), it can be noted that energy communities in France have started gaining momentum in 2010. The first projects mostly stem from cluster 2. Over time, this model has gained in maturity and benefited from strong networks supporting its development (e.g. Energie Partagée Association and the "Centrales Villageoises" network; (Fontaine 2018)), leading to a surge in the number of new projects in 2015. This was followed by a drop in the number of new projects in 2019, which can be explained by the introduction, in 2017, of a decree that defined new purchase conditions and made very small projects financially unattractive (Sebi and Vernay 2020).

36. Cluster 1 has grown steadily over time, eventually outpacing the growth of cluster 2 in 2019. This evolution was favored by the aforementioned decree which encouraged the development of larger projects, thus incentivizing energy communities to partner with commercial developers. It was also facilitated by the Energy Transition Law for Green Growth adopted in 2015, which allowed local authorities to enter the ownership of projects. Clusters 3 and 4 have gradually gained prominence, although at a slower rate compared to the two other clusters. In the case of cluster 3, this slower growth pace might be explained by the lower profitability expectations and the longer time horizons for returns on investment of Énergie Partagée Investissement as compared to other crowdfunding platforms, making it less financially attractive for investors willing to turn a quick profit.

Figure 3.3 Evolution of clusters over time.



Source: authors.

3.4.5. Multiple correspondence analysis

37. To analyze the strength of institutional logics in energy communities, we conducted a multiple correspondence analysis. Results are illustrated in Figure 4, which places in a two-dimensional space the four clusters studied and the indicators for each logic. Our results show that the two first dimensions explain, together, about 58% of the variance between clusters regarding the strength of institutional logics. The horizontal axis (dimension 1) and the vertical axis (dimension 2) account for 43% and 16% of the inertia (i.e. variation), respectively. The distance between clusters in Figure 4 represents the extent to which they share similar characteristics, while the distance from the clusters to the point (0,0) represents the extent to which the characteristics of the clusters are rare. Categories are also placed in this two-dimensional space, with nine categories (weak, medium and strong for each of the three institutional logics). The proximity of the cluster to these categories indicates how they score on each institutional logic.

38. An opposition on the second dimension (vertical axis) between clusters 2 and 3 can be observed. Cluster 2, which corresponds to projects owned and led by citizens, is characterized by a strong presence of the community logic and an intermediate presence of the market and state logics, while cluster 3 is characterized by a weak presence of the community and state logics. The strong presence of the market logic in cluster 2 can be

explained by the ambitious expectations in terms of return on investment and the relatively short time horizons for this return (often from two to five years) of the projects in this cluster. This suggests that economic motives are particularly prominent in these projects and confirms previous studies emphasizing the role of financial motivations in attracting citizen investment (Bauwens 2016c; Holstenkamp e Kahla 2016). The state logic is moderately present in cluster 2, reflecting the modest dependence on state support of the projects in this cluster.

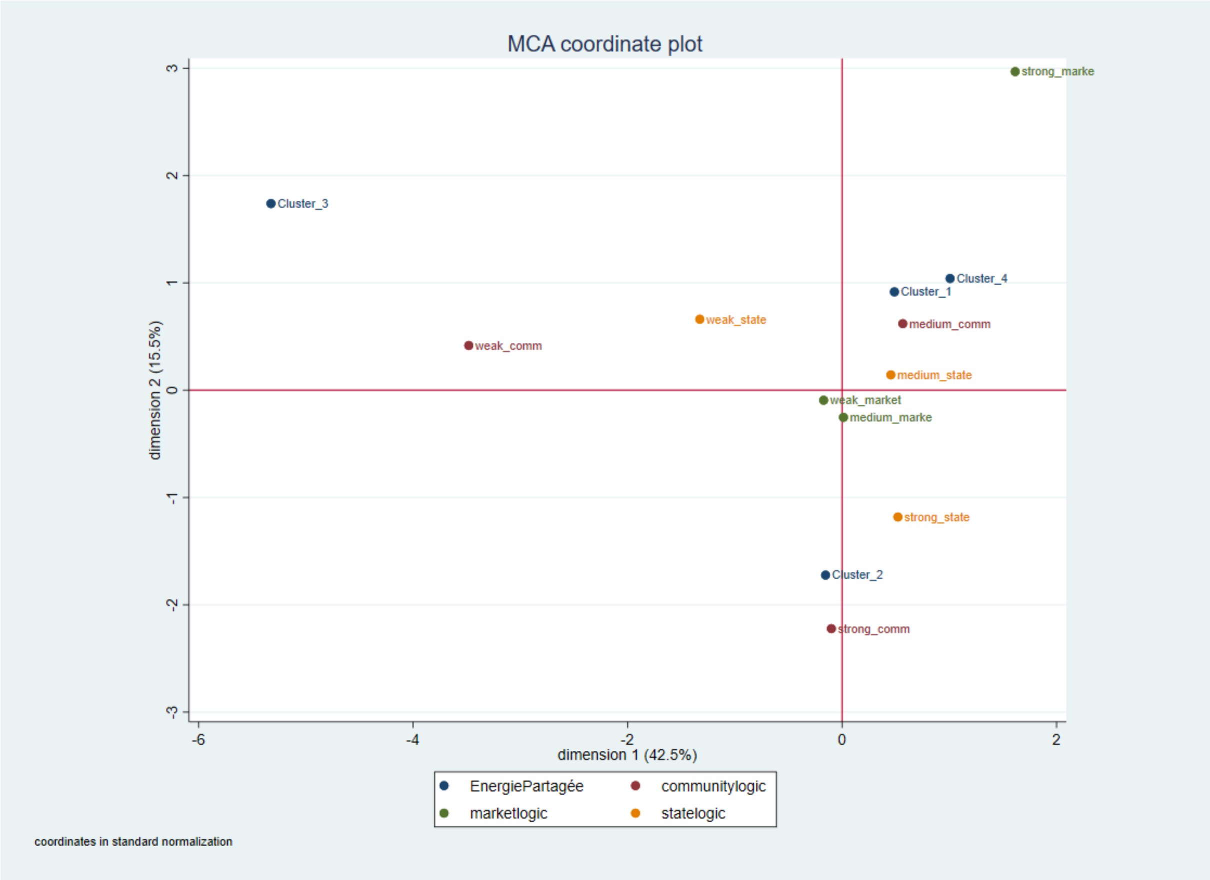
39. Cluster 3, which is composed of projects managed by the crowdfunding platform, is the most distant clusters from the other ones, denoting its dissimilarity in terms of institutional logics. Furthermore, it can be observed that this cluster is characterized by a weak presence of all institutional logics, suggesting that projects in this cluster are not defined by a dominant logic. The low score of the community logic may be explained by the relative lack of personal ties among the shareholders taking part in the online crowdfunding platform. The low score of the market logic in cluster 3 suggests that participants to the crowdfunding campaign are not particularly motivated by financial gain. The state logic is not prominent, as projects in this cluster rely on little or no subsidies.

40. Clusters 1 and 4 are relatively close to each other, both on the horizontal and vertical axes, suggesting that they share similarities in terms of institutional logics. They present more complex configurations in terms of ownership structure as compared to clusters 2 and 3, with more types of actors involved. They are characterized by an intermediate presence of the community logic, suggesting that, despite the limited direct citizen participation in their ownership, these projects exhibit some degree of community engagement. They also correspond to an intermediate presence of the state logic, which can be related to the involvement of public authorities in the ownership structure of these projects.

41. Overall, our analysis confirms that energy communities are characterized by multiple institutional logics. Furthermore, we observe that the ownership structure of energy communities does not fully reflect the institutional logics that characterize them. Direct citizen participation in the ownership of projects appears to be strongly related with a prominent community logic and the involvement of public authorities in the shareholding is related to a relatively strong state logic. However, the absence of commercial actors in the ownership of projects does not necessarily imply a weak market logic (as indicated by

projects in cluster 2), while projects without direct citizen participation in their ownership may still exhibit some degree of the community logic.

42. **Figure 3.4**. Map of active categories.

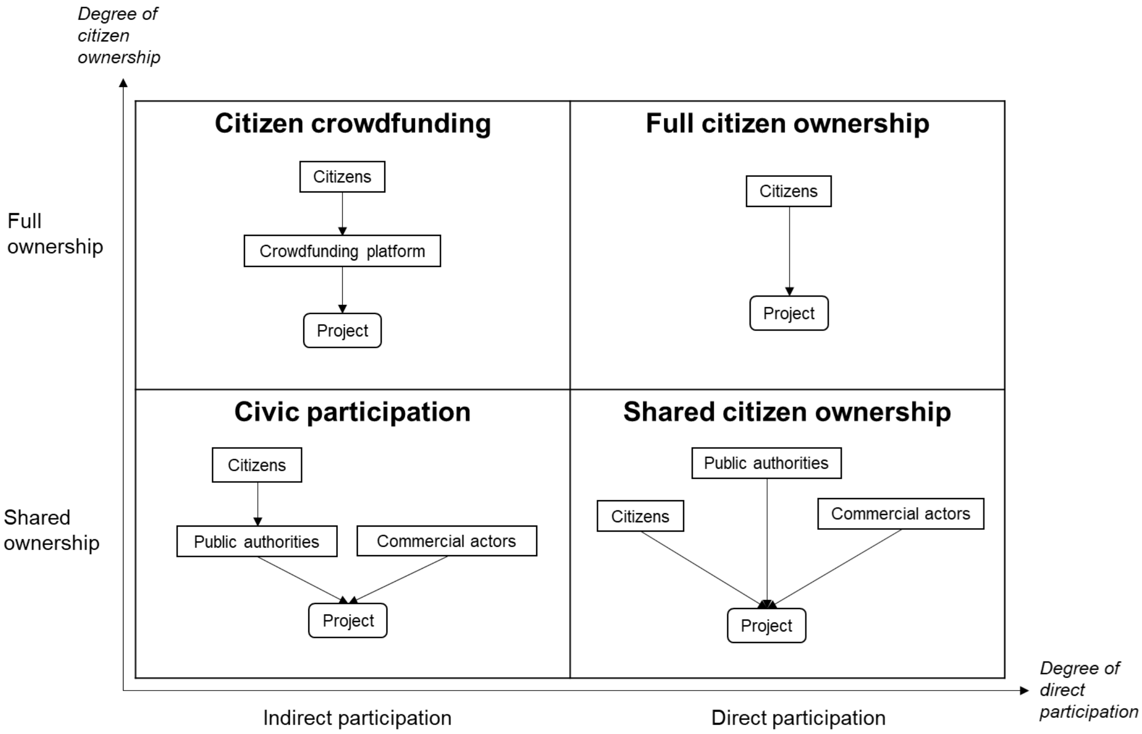


Source: authors.

3.5. Discussion: four models of energy citizenship

43. The results of the cluster analysis and the multiple correspondence analysis can be interpreted in the light of two dimensions: the degree of citizen ownership and the degree of direct participation. The crossing of these two variables highlights four different models of citizen involvement in energy communities, which correspond to the four clusters highlighted in our analysis. The remainder of this section presents these models.

Figure 3.5. A typology of energy citizenship in energy communities.



Source: authors.

3.5.1. Full citizen ownership

44. In the first model (corresponding to Cluster 2), citizens fully own the production assets, take the leading role in the development of projects and capture most of the benefits of energy production. These projects depict the ideal type of the energy citizenship model, where citizens in energy systems are not mere users or consumers but active prosumers (Islar and Busch, 2016; Ryghaug et al., 2018). They participate in the governance and in activities to raise awareness of energy issues within the broader local community. Our multiple correspondence analysis shows that projects adopting this model also present a strong market logic, reflecting that they are also driven, at least to some extent, by financial objectives.

45. As equity is almost entirely owned by citizens, energy communities following this model are less likely to suffer institutional complexity (i.e. the tensions between competing institutional logic; (Bauwens, Vaskelainen, e Frenken 2022) and are less exposed to tensions between diverging objectives. Another advantage of this model is that it is likely to benefit from higher community support for the projects as compared to developer-led projects (Bauwens and Devine-Wright, 2018). Moreover, because the prevalence of citizens and community related objectives gives projects legitimacy, energy communities following this model may be able to collect funds more

easily. Finally, these projects may have a tendency to develop local dynamics in which citizens, including those who are not shareholders of the projects, get involved in energy issues. This model may also have some disadvantages. For instance, it may suffer from lack of technical skills or financial resources, as those are often brought to energy communities projects through their collaborations with commercial actors and public authorities. This lack of resources and skills may limit the ability of projects to scale and, therefore, to achieve larger economies of scale (and related reductions in the cost of energy production) and mainstream renewable energy. Our analysis shows that projects in cluster 2 do indeed present a smaller scale of operations, as indicated by smaller installed capacity and budget.

3.5.2. Shared citizen ownership

46. In the second energy citizenship model highlighted by our analysis (corresponding to cluster 1), citizens are directly involved in decision-making of projects, but share the ownership with commercial actors and local public authorities. Despite this shared ownership, citizens often own the highest capital share. Our multiple correspondence analysis also suggests that the community logic has a medium presence, meaning that there is some community involvement in the projects.

47. This model has several advantages for all parties involved. For commercial developers, involving the local community can bring additional sources of funding and risk sharing, knowledge on local preferences and concerns, while securing early-stage community support. For local communities, working with a commercial partner may provide an avenue for acquiring a share in a larger scale renewable energy project that circumnavigates any lack of skills and capital within the community, and may allow greater influence over the management of environmental impacts. The commercial developer can take the lead on issues where it has expertise, such as securing grid connections and negotiating market support. When local authorities also share the ownership, they can provide energy communities with an additional source of funding and legitimacy. In return, local authorities benefit from cheaper energy for public services as well as the possibility to participate in actions of public interest (Ceglia et al. 2020).

48. Shared ownership may, however, suffer from tensions between potentially conflicting objectives pursued by diverse investors or from a lack of trust, with negative expectations of the different parties of one another. A qualitative study from the UK, for instance, suggests that, although there may exist strong support for shared ownership among developers and communities in principle, developers expressed skepticism regarding the capacities and representativeness of community actors and community actors viewed developers as merely motivated by profit, instrumentally

using communities to gain acceptance (Goedkoop and Devine-Wright 2016). Thus, the increasing presence of private companies is likely to question the democratic character of energetic transition and the possible power asymmetries between participants especially citizens and large companies (Brisbois, Morris, e Loë 2018).

3.5.3. Citizen Crowdfunding

49. In the third energy citizenship model (corresponding to Cluster 3), citizens entirely own projects' equity, but indirectly acquire financial participation through the online crowdfunding platform "Énergie Partagée Investissement". This model presents the advantage of being able to reach a larger pool of potential investors and, consequently, mobilize a larger amount of equity as compared to models that do not rely on an online platform. Energie Partagée Investissement can also count on the fact that the projects financed are also members of Energie Partagée Association and benefit from the technical support of local correspondents specialized in this field.

50. Although the multiple correspondence analysis does not show a strong presence of the community logic in these kinds of projects, interviews show an effort to create links with the local community. Energie Partagée Investissement pursues local impacts and part of the benefits are allocated to activities aimed at raising awareness on climate issues within the local population. Moreover, energy communities following this model have played the role of first steps towards the mobilization of local civil society. We observe, for instance, that Energie Partagée Investissement sells shares of these projects to local citizens and today only 10 to 30% of the shares are held by the crowdfunding platform. As a result, even if the community logic has not been found to be strong by our analysis, this organization acts as a booster of social participation. According to Interviewee 10, Energie Partagée Investissement could be defined as an equity-based crowdfunding, politically and socially motivated.

3.5.4. Civic participation

51. The last model (corresponding to Cluster 4) represents a scheme in which citizens do not own shares of the project nor are they actively involved in their governance. Instead, public authorities own the largest share of projects' equity, together with commercial actors. This model is called "civic participation" in reference to the concept of "civic energy" emphasizing the municipal ownership of energy systems (S. Hall, Foxon, and Bolton 2016). In this model, citizens' agency is delegated to their elected representatives, who are supposed to pursue public interest. Our results suggest that this model is characterized by a strong prevalence of both state and community logics, as it is highly dependent on state funding, but also encourages the development of community

engagement activities in the vicinity of projects. This suggests that, despite the absence of direct citizen engagement, this project design aims at locally empowering citizens on energy-related issues.

52. This model may benefit from larger technical and financial resources due to the presence of commercial actors in the ownership structure, as well as a higher level of legitimacy associated with the presence of local authorities. This is supported by the relatively high median budget of projects in cluster 4 and in terms of project investments while it also appears more diversified and able to deal with technologies seen as more complex. Regarding this model, few disadvantages appear since despite the lack of direct ownership, projects have an impact on citizens.

3.6. Conclusion and policy recommendations

53. According to the literature on energy citizenship and energy democracy, for a just low-carbon energy transition to materialize, citizens should be able to actively take part in energy governance and decision-making processes. Energy communities have often been presented as an ideal organizational vehicle to achieve this. However, recent trends towards a diversification of the types of actors involved in energy communities have raised the question whether citizens are still the main driving force behind these initiatives. Focusing on the case of France, this paper addresses this question through an analysis of the ownership structure and institutional logics of energy communities. Based on two criteria (the degree of citizen ownership and the degree of direct participation), it proposes a novel typology of four models of energy citizenship in energy communities: full citizen ownership, shared citizen ownership, citizen crowdfunding and civic participation.

54. Our results show that the full citizen ownership model represents the largest share (46%) of the projects in our sample, suggesting that citizens still hold a central role in energy communities. However, hybrid models have come to the fore in recent years, including the shared citizen ownership model which depicts a collaborative governance with commercial actors and local authorities, and, to a lesser extent, the citizen crowdfunding model and the civic participation model. Our results also show that hybrid configurations still present traits of the community logic. Thus, they do not necessarily challenge the role of energy communities in fostering energy citizenship.

55. These recent trends suggest that hybrid designs will become increasingly prominent and are considered by many observers as the future of energy communities. They go hand in hand with an

evolution towards larger-scale projects, which has been encouraged by policy changes. While the 2017 decree had already hindered the development of small-scale, citizen-led projects, the 2021 decree, which deprives energy communities benefiting from the feed-in-tariff from access to local subsidies, represents an additional challenge for the financial viability of small citizen-led projects. Partnerships with commercial actors and local authorities may thus represent adequate responses to this changing context, as they have the potential to facilitate the development of larger-scale projects. This is also in line with the vision promoted by the French Commission of Energy Regulation, which seeks to increase the size of projects while maintaining a strong presence of citizens (Rudinger 2019; Azarova et al. 2019).

56. Admittedly, this study also has limitations, which suggest several avenues for future research. First, our sample size is still limited, particularly for the multiple correspondence analysis which only relies on 19 survey responses, and caution is thus warranted regarding the external validity of our findings. While our external validity may be greater than that of previous studies, we do not claim to present results that are representative in a strict statistical sense for the population at question. Future research could attempt to expand our sample size. Second, the choices made in terms of geographical scope also imply some caution when generalizing our results. Further research could include the analysis of energy citizenship in energy communities in other geographical contexts.

57. In terms of policy recommendations, it is essential to ensure meaningful citizen involvement by building a culture of trust in larger hybrid organizations. This can be done by providing resources to foster collaborations between citizens, private actors and local authorities. The role of intermediary organizations, such as Énergie Partagée, can here be pivotal by becoming an intermediary between the different stakeholders involved in energy communities to facilitate communication and maintain high citizen engagement. These intermediary organizations can, for instance, propose training for the developers to help them to build their projects together with citizens. Second, it is vital to raise awareness about energy communities among local authorities. While the latter can be instrumental in initiating energy citizenship, they often lack knowledge about the means to do it. Local authorities already participating into energy communities could undertake the role of ambassadors and share best practices with their peers the possibilities that these forms of organization can offer.

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Chapter 4: Paper 2: Energy citizen or energy investor: Are energy communities developing energy citizenship?

Abstract

Energy communities deeply question the role of citizens in energy transition, traditionally seen as passive energy users. Especially some scholars and institutions tend to relate the development of energy communities to the one of energy citizenship, where citizens will be key actors in fostering the energy transition. Driven by social and environmental motivations and community-led management, it is expected that by becoming shareholders in these organizations, people get empowered and more aware of energetic issues, pushing them to change their practices and behaviors towards more sustainability. However, as found by some studies, this view appears quite romanced since the expected engagement of energy communities' shareholders could be discussed. Moreover, in a rapidly growing sector, the financial turn taken by some organizations could lead to favor the shareholders' instrumental motivations.

Therefore, this study investigates whether energy communities' participants are related to the concept of energy citizens or are more likely to limit their role to one of the energy investors. This study compares individuals from two large European energy communities, i.e., 'ènostra' in Italy and 'Ecopower' in Belgium (N=5402). The results show that the level of energy citizenship is generally low in terms of involvement but also depends on the state of development of collective action initiatives. Surprisingly, the results suggest that personal interest could also foster engagement in these organizations, but more limiting than altruist motivations. More worrying, is the fact that taking part in an energy communities could be seen more as the materialization of an engagement already present, questioning the inclusivity of these initiatives through an ecological elitism and thus their disruptive potential.

4.1. Introduction

1. Referring to the main research question driving this thesis, this chapter aims to evaluate the political engagement of the shareholders in their cooperative, focusing and discussing the emergent concept of energy citizenship. Indeed, the social lens of energy transition is more and more stressed as a fundamental dimension to reach energy transition objectives. Many lock-ins come from a lack of trust and knowledge of renewable energy technologies while changing our current practices towards more sobriety and optimizations is a crucial issue to achieve energy transition (Cherry et al. 2017; European Commission, 2015; 2016). Therefore, energy is not only considered as a technical problematic but more broadly as a whole, implicating that society and technologies interact together This change of paradigm has been particularly seen through the new direction taken by the energy policies, which aims to put the European citizens "at the core of the Energy Union" and consider them as a pilar of the future energetic system (European Parliament 2018; European Union 2019) . In this sense, collective forms of prosumerism, the act of production and self-consumption, have been recognized as a critical element of the future energy market.

2. In particular, the development of a collective form of prosumerism, as energy communities, has been growing very fast these last years, leading to consider the involvement of citizens as a key factor to create a new energy market (Bomberg and McEwen 2012). Energy communities are emphasized for their capacity to harness and allow citizens to actively participate in the energy transition and, thereby, enjoy benefits: financial and empowerment on energy issues and sustainability (Wierling et al. 2018). This means that energy communities imply a substantial shift in the traditional energy market. Based previously on a top-down logic, energy communities are associated with a democratic and local management as also the development of a new figure, an energy citizen able to deal with a decentralized energy market (Angel 2016).

3. Consequently, participating in an energy community goes beyond a simple financial participation, as an energy investor. These organizations implicate the development of collective ownership based on a participative deliberative democratic organization, and thus a willingness to work collectively and communicate effectively with others. In this sense, shareholders should develop interpersonal connections and identification with their community reinforcing their engagement (Goedkoop et al. 2022). Taking part to an energy communities project is a way to adopt an identity conform to the group allowing to the development of moral norms regarding energy and sustainable issues which can replace external injunctions (Deci and Ryan 1985). Participants of these initiatives are seen retaining a sense of individual responsibility in the ultimate outcome of one's efforts. They are also

characterized by solid attention to social and environmental issues, showing a commitment to the whole community's interests (Jenkins 2019).

4. More specifically, to characterize these new actors, the literature has elaborated the concept of energy citizenship, defined as: '*awareness of responsibility for climate change, equity and justice in relation to siting controversies as well as fuel poverty and […] the potential for (collective) energy actions, including acts of consumption and the setting up of community renewable energy projects*' (Devine-Wright 2007, 72). However, some doubts can appear regarding the relation between the participation of citizens in energy communities and the development of energy citizenship. The collective action theory has shown through the prisoner dilemma that it is unlikely that active participation will concern the majority of the shareholders (Khadjavi and Lange 2013; Olson 1965). Indeed, since no incentive has been put to promote involvement and, more largely, empowerment on energy issues, people, acting rationally, will not be willing to consecrate much of their resources- time- in these initiatives. Energy citizenship could concern only a tiny minority of the participants "altruists," meaning those acting by sympathy, who will dedicate their time to the benefit of others (Dóci 2021).

5. Furthermore, another issue questioning this idea that energy communities could be led to the development of energy citizenship. It has been noticed that the newest cohort of shareholders appears driven more by financial issues than political and social transformative views (Devine-Wright 2019; Martin, Upham, and Budd 2015). If energy communities are non-profit organizations where common issues should be the first drivers of these organizations (Radtke 2014; Rescoop 2020) and people mostly driven by pro-environmental behaviours (Sloot, Jans, and Steg 2019), recent evolutions tend to question this assumption. For example, Islar and Busch (2016) show that some shareholders declare frankly: "*We are not here to save polar bears*"(Islar and Busch 2016). In this case, people would maybe not be so likely to care and raise their awareness of sustainability, referring more to the figure of an energy investor. Contrasting with the idea of an active energy citizenship, where people implicating in these organisations are engaged, it is likely that shareholders limit their participation to purely instrumental scheme of investors rather than being broadly engaged in these initiatives.

6. This is why, at a time when energy communities have been seen as a way to bring fundamental changes by putting citizens at the core of the processes and outcomes of energy production and consumption (Szulecki and Overland 2020), this work proposes to question the relevance of the concept of energy citizenship to energy communities. The aim of this paper is, thus, twofold. First, it

aims to assess if energy citizenship is appropriate to characterize the engagement of citizens in energy communities. Second, it purposes to assess if the increase in participants' instrumental motivation (profit-driven) could undermine the transformative potential of energy communities by negatively impacting the level of energy citizenship (Bauwens 2016; Middlemiss 2014; van Wees et al. 2021). The paper contributes to the literature on energy communities in three ways. First, it highlights the current practices and behaviors of the shareholders in energy communities. Second, it provides quantitative data on energy communities' shareholders, rarely collected in this sector. Third, different from previous comparative studies on energy communities, it compares two countries, Belgium and Italy, that belong to two different European regions, North and South, where it is expected that geographical context could produce various forms of engagement (Chilvers and Longhurst 2016; Magnani and Carrosio 2021).

7. This paper is structured as follows. In the next section, I review the literature's different aspects of energy citizenship. This concept is still largely open to interpretation and needs to be better framed (Lennon et al. 2020). Then, the third section is dedicated to the methodology, based on a quantitative approach (N=5402), while I expose and discuss my results in the fourth section and discuss them in the last section.

4.2. Theoretical framework: how to characterize energy citizenship into energy communities?

4.2.1. Energy communities and energy citizenship

8. For years, the "energy public" representation has been to consider energy consumers as simple users, lacking interest, knowledge, rationality, and environmental and social responsibility regarding energy issues (Devine-Wright 2007). On the contrary, with decentralized technologies, the new energetic system is designed to open the possibility for all citizens to act individually or collectively and become active in the energy field (Angel 2016; Burke and Stephens 2017; Lowins 1976; Spaargaren and Oosterveer 2010). In this view, the figure of the energy citizen corresponds to the idea-type of a novel actor, characterized by new daily practices and behaviors of citizens, who can understand and deal with energy issues, helping to diffuse a new energetic model essential to the future energy system. Especially, energy communities, by directly engaging their shareholders in their organisations, which means people having subscribed a share, have been considered as a fertile ground to create this new actor. The participation of citizens in energy communities could create the meaningful interactions needed between the society and the energy system by producing a new type of (energy) citizens who should be invited to be in the future energy system (Devine-Wright 2007).

9. First, energy communities' potential has been emphasized because becoming the shareholders of an energy community requires more than passive participation. The exercise of this citizenship asks them for an active involvement in their communities. Energy communities adopt mainly cooperative management based on "one people, one vote," where all citizens can become the owners and govern their renewable energy installations (Seyfang et al. 2014; Smith et al. 2016; Walker and Devine-Wright 2008). The shareholders of these organizations should build and make their own decision through a deliberative democratic process (Duda 2015). Energy communities create spaces of confrontations and discussion where citizens are central by exchanging their views and fixing the rules of functioning (McHarg 2016; Szulecki and Overland 2020). Adopting the model of Athenian democracy, the community is an arena where the shareholders are also invited a time by year to take part in the general assembly where they will decide how to orient their projects and vote on these issues (David and Schönborn 2018; Devine-Wright 2019; Lennon et al. 2020; Walker and Devine-Wright 2008). This involvement in the functioning of this democracy is also characterized by the fact that people dedicate their time freely to volunteer for these organizations, a crucial element of the functioning of energy communities.

10. Moreover, a second dimension of this citizenship is the fact that energy communities look to empower their shareholders on energetic issues proposing, for example, training in energy savings or efficiency (Campos and Marín-González 2020; Cloke, Mohr, and Brown 2017). In this sense, Wuebben et al. (2020) showed that energy communities could act as capacity builders to develop energy citizenship (Wuebben, Romero-Luis, and Gertrudix 2020). Energy communities, by providing information on environmental issues, generally judged trustable by the shareholders, contribute to building knowledge on this issue(Middlemiss 2008; Ohler and Billger 2014). For example, ènostra provides webinar to their shareholders, while Ecopower organize meetings to discuss and exchange directly with their shareholders on energetic issues. Gaining in capacity, thanks to their participation in these organizations, citizens get empowered, meaning that they finally got the possibility to exercise their citizenship fully. Indeed, through their participation, they also have the tools to reduce their consumption, adopt more sustainable practices relative to energy and develop a sense of civic responsibility on energetic issues (Beauchampet and Walsh 2021; Berka and Creamer 2018; Sloot, Jans, and Steg 2019). In this regard, citizenship is considered a collection of social processes through which individuals and groups expand their rights and being able to manage energy issues.

11. As shown by Bauwens (2016): "*In contrast to markets, by facilitating direct personal interactions, communities effectively encourage the formation of norms, such as interpersonal trust, social*

identification, solidarity, reciprocity, reputation, personal pride, vengeance, ect."(Bauwens 2016). This means that energy communities could be a promising institutional context developing new norms in which people reinforce their pro-environmental behaviours with people looking to change their daily practices towards more sustainable ones (Ohler and Billger 2014; Radtke 2014; Ryghaug, Skjølsvold, and Heidenreich 2018) . In this sense, participating in energy communities could also be a way to satisfy a broader engagement, which goes over the cooperative. The first reason is that people could be defined as conditional cooperators, which means that to put efforts into protecting a common good, they must be sure that others will be likely to do the same (other-regarding preferences). Energy communities act as an insurance that they won't be alone in participating in the general effort towards more sustainability (Bauwens and Eyre 2017). Therefore, energy communities contribute to the third dimension of energy citizenship, where the shareholders are also pushing to be more engaged on energy issues by adopting sustainable practices such as reducing their energy consumption but also being more respectful of their environment in general (Berka and Creamer 2018; Braunholtz-Speight 2015; Rogers et al. 2012; Sloot, Jans, and Steg 2018). Energy communities are a way to incite people to adopt a more sustainable lifestyle and contribute to build the figure of a new citizen caring for energy but more largely to sustainability.

4.2.2.Research questions and hypothesis

12. As said before, despite the promising role of energy communities to foster an energy citizenship, a gap is likely to appear. Indeed, becoming an energy citizen requires an investment in terms of time and knowledge. It is hard to believe that shareholders might not be willing to do it without any incentive. Furthermore, some qualitative studies already shown that many shareholders do not actively engage in energy communities' activities. As a result, projects often rely on the work of a few volunteers, while the other members of the community benefit from these projects without getting involved (free-riding behavior) (Van Veelen 2018; van Veelen and Eadson 2019). Especially in the last years, some energy communities, as it is the case of Ecopower, have become profitable for their shareholders, who obtained a significant return both on equity and lower electricity prices. In this case, even if sharing *a priori* a concern for the social and environmental impact of their cooperative compared for example to è nostra with a more complicated financial situation, it is likely that the shareholders are less likely to be engaged.

13. Therefore, this chapter answers the following research questions:

1-To what extent is energy citizenship present in both cooperatives?

2-Are instrumental and social, and environmental motivations playing a role in the level of energy citizenship in these organizations?

14. It is expected that, in general, the level of engagement would be high in these two organizations. However, a higher level of citizen engagement could be expected in Italy than in Belgium for the following reasons. First because of the size and the maturity of these initiatives, to remind, ènostra is around ten times smaller than Ecopower. Secondly, because, previous comparative studies, such as the one of Doci (2021), focused on countries belonging to the same European regions, e.g., Germany and the Netherland. In that case, energy communities showed many similarities in the engagement of citizens. However, differences may arise when comparing countries that differ in many aspects as it is the case between Belgium and Italy. As said in the second chapter, the incentives to participate is less important in è nostra compared to Ecopower. Therefore, it is expected that with such strong differences, the level of energy citizenship could vary across these both countries and will be more developed in Italy, where people have somehow already affronted some barriers to join these initiatives (Chilvers and Longhurst 2016).

15. Regarding the second research question, it is hypothesized that, in both cooperatives, shareholders having the highest level of instrumental motivations are less likely to develop energy citizenship and, in this, refers more to the idea of financial investors. On the contrary, social and environmental motivations, called here altruistic motivations, would tend to raise the level of engagement, and refer more likely to the idea of energy citizenship. Furthermore, other factors may determine a difference in engagement, such as the socio-demographic characteristics of energy communities' shareholders (Goedkoop et al. 2022). Especially, for the case of gender, it can be ambivalent since, on one side, women are more likely to care for climate issues, while being empowered on energy could be more difficult since energy remains a male domain (Boje, Hermansen, and Møberg 2019; Łapniewska 2019)(Boje et al., 2019; Łapniewska, 2019). Then, education is an essential factor that can explain the difference in the shareholders' engagement, where most educated people could *stimulate their civic skills and enhance social skills and networks*. The position in the labor market can also impact their behaviors in the cooperative. However, the effect of this variable remains ambivalent since people occupying the highest social position have more resources to participate but at the same time could be discouraged since actively taking part in these initiatives requires time (van Ingen and Dekker 2011).

4.3. Methodology

16. The variables of interest, here, is the concept of energy citizenship, investigated through three dimensions of energy citizenship as identified in the literature, i.e., involvement in the cooperative, empowerment, and broader engagement in sustainable issues. *Involvement in the cooperative activities* was measured using a battery of three items, (1) "Do you participate in the general assembly?", (2) "Do you participate in other meetings?", and (3) "Do you volunteer for the cooperative?". Answers were binary, i.e., participants could choose between "Yes" or "No". Then the demand has been summed and divided in three categories: 0" No active participation", 1" Little active participation", 2" Active participation".

17. *Empowerment in energy communities* was measured using a battery of two items, (1) since I participate to the cooperative, I have developed competencies on energy, and (2) since I join the cooperative, I feel more legitimate to speak about energy issues. The items were evaluated on a 3-point Likert scale (0 = strongly disagree or disagree; 1 = neutral; 2 = agree or strongly agree) and an index has been created (Cronbach:0,73). Finally, *broader engagement in sustainable issues* was measured using an index assessing the adoption of sustainable behaviors (7 items), e.g., taking the bicycle or eating biologic and local (Cronbach alpha: 0.71). This was evaluated on a 3-point Likert scale (0 = never or fast never; 1 = sometimes; 2 = always or fast always).

18. I test the association of energy citizenship with three factors, i.e., the belonging cooperative (0= Ecopower, 1 = ènostra), shareholders' instrumental motivations, and shareholders' altruistic motivations. *Instrumental motivations* was measured asking respondents, on a 5-point Likert scale (1 = Not at all important, 5 = Very important) "To what extent does making a profit play a role in your decision to join the cooperative?". Altruistic motivations was measured asking respondents to what extent it was important for them that the cooperative was engaged in two types of missions (Cronbach alpha: 0,74). These included (1) social impact and (2) ecological. The two variables for instrumental and altruistic motivations were standardized to allow being compared.

19. Finally, I controlled for some potentially confounding factors. First, the number of years shareholders were part of the energy communities since theory on collective action show that the size can impact the level of shareholders involvement. Therefore, the shareholders of Ecopower have been separated in two categories, i.e., more and less than 15 years since in 2006 Ecopower used to have the same size than ènostra (**Graph 2.1**). For ènostra, really starting its development since 2015, after the fusion with Retenenergie, we differentiate the shareholders between those having more and less

than five years of seniority. We also included, field and level of study, occupation (and income (0 = inferior to the country's median income. Finally, I also controlled for respondents' age (from 18 to 70 or more). The absence of correlation using the correlation matrix have been checked and also the package Collin on STATA 15 with a condition Number of 4.71 and a mean Vif of 1.02.

4.4. Results

Table 4.1: Difference between the shareholders of Ecopower and ènostra

	Ecopower		ènostra				
	M	SD	M	SD	T	p	Cohen's d
Involvement	1.21	0.60	1.27	0.58	-1.63	0.10	0.04
Empowerment	2.00	0.66	1.69	0.65	7.75	**0.00**	0.21
Broader engagement	2.37	0.65	2.81	0.42	-11.25	**0.00**	0.31

4.4.1.Involvement

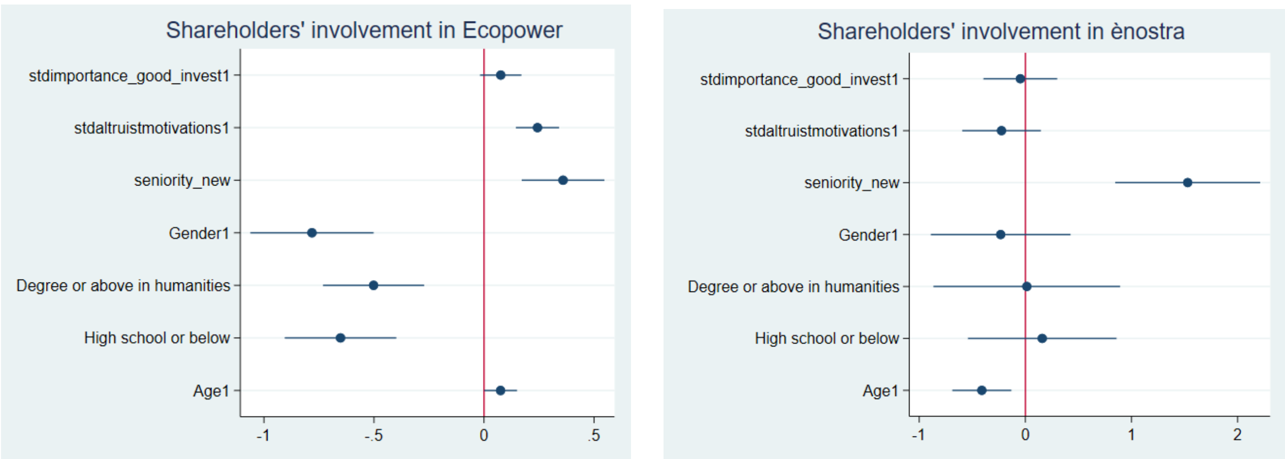
20. The results on the involvement of shareholders in the activities (**Table 4.1**) show that unexpecting the level of involvement in both cooperatives remains low, with a large part of them does not participate in cooperative activities. As shown by the predictive margins, in the total sample, 89% did not participate in cooperative life, like taking part to the general assembly, various meetings, or volunteering. As shown by a t-test, the level of involvement remains similar in both cooperatives, even if the shareholders of ènostra tend to be slightly more likely to dedicate one part of their time to participate since they are 18% to have strong, active participation against 9% for Ecopower. Therefore, the first hypothesis related to the idea that energy communities imply a strong involvement of their shareholders is rejected; in this case, it confirms the theory of collective action initiatives and the prevalence of individual rationality rather than citizenship. Only a minority of members will be willing to invest their time, while the others will act as free riders (Olson 1965). Moreover, when deciding to participate actively, the shareholders generally tend to take part in one activity rather than the whole.

21. Looking more precisely at the pattern of participation in both organizations (**Graph 4.1**), for ènostra, the motivations to join the cooperative, either economic or altruist, do not impact the involvement in the cooperative activities for the shareholders. In contrast, altruist motivations positively affect the involvement of the shareholder of Ecopower but not the one of ènostra. In this case, this absence of relations can be explained by the level of altruist motivations already very high by ènostra, and

which do not vary so much between their shareholders, showing that in this cooperative, people are more homogeneous and which can be an explanation for the highest participation in the cooperative activities. Then, people in STEM tend to be more involved in Ecopower than those with a degree in humanities or a high school diploma or below, while by ènostra, the field and the level of study do not impact the level of involvement. This could be explained by the fact that the level of education is lower in Italy and could be seen as less discriminant to take part in these initiatives. In both cooperatives, being a woman is negatively related to the involvement in the cooperative. Unexpecting, since the gender index is lowest in Italy, this is truer by Ecopower. In this case, since by ènostra, people are more "selected," it is likely that they are more attached to inclusive values, explaining in part the highest involvement of women.

22. Finally, controlling for the size and the maturity of the cooperatives, the involvement of shareholders across time has been decreasing, confirming the collective action initiatives theory. This is especially true for ènostra, which were in the past only 57% not to participate to the activities for the oldest cohort while they are 85% today, adopting a similar trend of participation as Ecopower's shareholders. However, the participation for Ecopower remains constant across time, which is quite unexpecting. A second result is also important, showing that the context in which is anchored the cooperatives, is determninant. Indeed, even controlling for the size level, Ecopower scores always below ènostra.

Graph 4.1: Estimates coefficients involvement-CI 95%



4.4.2.Empowerment

23. On the global sample, the results show that one shareholder out of two has a neutral opinion that their participation in the cooperative has led them to be empowered on energy issues. However, the

t-test shows, in this case, a difference between both cooperatives since in this case, the shareholders of Ecopower tend to benefit more from their participation to the cooperative compared to those of ènostra (**Graph 4.2 and Table 4.3**). Indeed, they are 22% to agree that they are more at ease with energetic issues since their participation, while it is the case for only 11% of the ènostra shareholders. In both cooperatives, the independent variables play in the same way even if their effect is more substantial for Ecopower. The shareholders with the highest motivations, either altruist or instrumental, are much more likely to find they have gained competencies and are more at ease speaking about energy. It is not so surprising since, in the case of profit-driven motivations, it could be explained that getting empowered is also a way to make a profit by reducing consumption. For altruist motivations, it could be seen as a way to develop diffuse good practices on energy. The variable gender is particularly relevant, showing a gender bias in gaining competencies, with men constantly feeling more confident than women to declare having been empowered. Age is insignificant for ènostra while playing a positive role for the shareholders of Ecopower. In both cases, the seniority, the income, and the occupation are not significant and do not impact the fact that shareholders get empowered.

Graph 4.2: Estimates coefficients empowerment-CI 95%

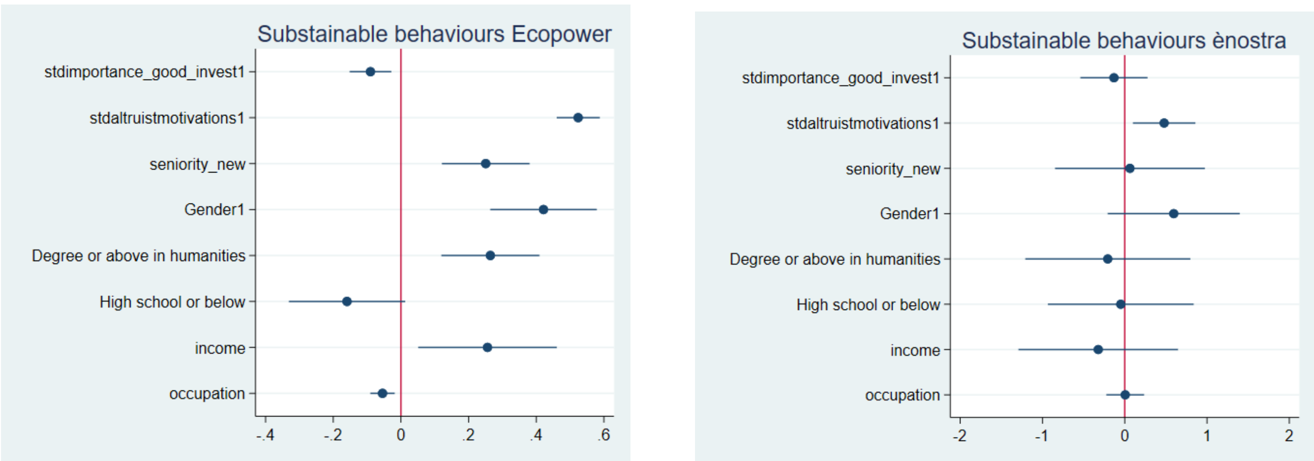
4.4.3. Broader engagement

24. Regarding adopting sustainable behaviors (**Table 4.1**), 48% of the participants strongly care about these issues, and 43% are often attentive. However, a difference appears between the shareholders of Ecopower and those of ènostra, where the statistic model is not even significant. Indeed, the shareholders of ènostra are relatively homogeneous since 72% of them always adopt or fast always sustainable behaviors such as taking the bike or eating biologic, and this trend is not so impacted by

independent or control variables. In the case of Ecopower, the trend is different since, in this case, they are only the case for 47% always adopt sustainable behaviors. In both cooperatives, people with the highest instrumental motivations are less likely to adopt sustainable behaviors. In contrast, altruist motivations, especially for the shareholders of Ecopower, have a substantial impact on this dimension (**Graph 4.3**). Then, the oldest cohorts are more likely to be engaged in sustainable issues.

25. Moreover, developing a broader engagement is also dependent on socio-economic variables. For example, confirming that women care more about environmental issues, they are more likely to be engaged in this issue than men. The people with the highest income are also more likely to adopt sustainable behaviors; maybe since they do not lack resources and have fewer financial incentives to reduce their current consumption, it can be seen as a way to conform to a new ideal of sobriety. Then the field and level of study are only pertinent for Ecopower. At the same time, people with the highest level of study and, in particular, in humanities tend to adopt more sustainable behaviors.

Graph 4.3: Estimates coefficients sustainable behaviours-CI 95%



4.5. Discussion

26. Conceptualizing the level of engagement in energy communities is complex since the results are heterogene on the three dimensions identified (Beauchampet and Walsh 2021; van Wees et al. 2021). First, the shareholders score low on the cooperative's activities' direct involvement. questioning if energy community projects could be run and work even with the low involvement (Doci,2021). È nostra confirms the theory of collective action initiatives relative to the size of these initiatives since the individual investment of shareholders has been decreasing when growing (Olson, 1965). È nostra shows also that the level of engagement depends on the context since even

controlling for the size, their involvement remains higher than those of Ecopower, which can be explained by the different philosophy of these cooperatives, more market driven for Ecopower.

27. The dimension of empowerment is also firmly questioned since in both cooperatives only a minority of the shareholders declare having gained competencies or being more likely to speak about energy through their participation. In this case, the idea of energy citizenship, where shareholders should raise awareness on this issue, is far from being confirmed, questioning again the transformative potential of these initiatives (Avelino et al. 2020; Braunholtz-Speight 2015; Coy et al. 2021). In this case, it could be interesting to understand better why Ecopower better manages this issue. One possible explanation could be that Ecopower multiplies physical meetings as cinema or energy coffee to meet their shareholders while ènostra is limiting to webinars, showing the importance of physical meetings and interacting directly to gain knowledge. Furthermore, a strong warning has to be put since the minority of shareholders getting empowered are maybe not those who need the most to gain competencies on these issues, for example, with women scoring less than men on this issue. In this case, it is essential to consider that these organizations are not gender-neutral with gender stereotypes and gender bias that could appear, especially since energy remains a STEM field.

28. Finally, a primary difference between cooperatives appears in the third dimension of energy citizenship. For the shareholders of ènostra, participating in an energy community means much more than just participating in the cooperative's management but being in phase with the idea that people must become more aware of energetic issues and engage in more ecological behaviors. Things are more mitigated for the Ecopower's shareholders. Nevertheless, if this score on this dimension appears particularly positive for ènostra, it could also be double-edged. Indeed, the risk is that the cooperative attracts similar people and participates in creating a new "entre-soi," which is always a risk to the community (Little 2002). For example, they are only a tiny minority with a weak score on their level of sustainable behaviors, traducing the substantial homogeneity of people participating in these issues. The risk is that energy communities are ecologically elitist since people participating in these initiatives tend to be already the "kind" of citizens expected by institutions. Again, the citizens who would get involved will not maybe those who do not need the most to gain competencies on these issues, questioning the transformative potential of these initiatives again (Martiskainen, Heiskanen, and Speciale 2018). In this case, this data opens the door to more qualitative studies to understand better how far energy communities could attract and be a trigger for people who did not have a priori a particular interest in sustainability.

29. These results show that the shareholders of energy communities even if sharing common motivations to join as caring for the social and environmental impacts of their cooperatives are more based on the altruist behaviours coming from a minority of shareholders. This means that they still not manage to create strong social and moral norms on which people belonging to the group has to answer and conform in terms of engagement in their communities (Nyborg 2018). This lack of participation strongly. This lack of engagement questions the development of energy citizenship and its perspective on bringing citizens into energy transition and thus their transformative potential. A large part of the shareholders will not be involved in their communities and thus not able to create a connection with the energy system. The risk is also to discourage the few volunteers engaged in these organizations, who would expect a higher investment from the other shareholders (van Veelen and Eadson 2019).

30. However, even if it is doubly that energy communities could really bring an energy citizenship, it is also important to underline that if they do not reach these goals, their deployment will still having a strong impact. Looking to the case of Ecopower for example, showing less engagement compared to è nostra, this cooperative manages already to change strongly the Belgium energy landscape. Even being a larger group and conforming to the law of the decreased individual contribution, Ecopower has been able to realize strong investments and having more political power. With larger group, an advantage is also the fact that the cooperative gains an heterogeneity of the competences, compensating the lowest investment of their shareholders (Poteete and Ostrom 2004).

4.6. Conclusion

31. This study shows that the shareholders participating in an energy community are still far from the concept of energy citizen. Instead, shareholders of energy communities must be considered an in-between the illusory concept of energy citizenship that these initiatives could create, and an investor driven only by benefits, referring de fact to the hybridity of these organisations. In this case, investing can be seen to change the current energy' as a materialization coming from a sense of awareness and responsibility already present rather than being developed by energy communities. For example, 60% of participants were already managing their electricity bills before joining an energy community, partly confirming the literature on pro-environemental motivations to join an energy communities (Goedkoop et al. 2022; Barth et al. 2021). Then, contrary to the initial hypothesis, the highest level of instrumental motivations does not inhibit energy citizenship development. On the contrary, they can trigger the shareholder's engagement. However, the investment of people driven by profit is more dedicated to the organizations they have invested money in. They are less likely to be deeper

engaged in adopting sustainable behaviors, showing the lowest importance in taking part in other forms of collective action aiming to increase the welfare of the society.

32. At this point, to counterbalance this low level of investment, energy communities could try to create moral and social norms, choosing to incentive the involvement with, for example, an obligation to participate at less to the general assembly or dedicating some hours of volunteering for their communities. Since last year, ènostra has also asked some of its members to become active shareholders, helping the cooperative to diffuse the model of energy communities around them in their local territory. But in this case, the risk is that the model likely becomes less attractive for numerous shareholders not willing to dedicate a part of their time to their organizations. The point is maybe to ensure that collective provision will be ensure contributing to change the global system, which could also address the next issue we will address regarding the role of energy communities to ensure that joining these organizations is not reserved for a "kind" of citizens but aims to bring all citizens into energy transition.

33. I hope this work will open the field to further debates, mainly focusing on which kind of actions can bring participants more involved in collective management and in which measure it will be possible to speak about energy citizenship. Strong attention should also be put on the inclusive dimension of the energy transition since, as shown by this study, these initiatives tend to largely exclude those having the most needs by being more attractive to those already caring for these issues, such as women. This issue is especially crucial for Italy, where energy communities should play a fundamental role in fighting against energy poverty in Europe (Enea, 2021)[10] and diffuse a culture of sustainability[11].

[10] Italy has one of the highest rates of energy poverty in the EU (Enea 2021)

[11] Italy is one of the six European countries largely overpassing the limits of air pollution fixed by the World Health Organisation (Khomenko et al., 2021).

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4.8. Appendix

Table 4.2: Ordered Logit Estimates-Involvement

	Odds ratio	SE	95% CI		P
			LL	UL	
Ecopower					
Instrumental motivation	1.08	0.05	0.99	1.19	**0.09**
Altruits motivation	1.27	0.06	1.16	1.41	**0.00**
Seniority (new cohort)					
Old cohort	1.43	0.14	1.18	1.72	**0.00**
Gender (Men)					
Woman	0.45	0.06	0.34	0.60	**0.00**
Field of study (Degree or above in STEM)					
Degree or above in humanities	0.60	0.07	0.48	0.75	**0.00**
High school diplom or below	0.51	0.07	0.40	0.66	**0.00**

N = 5114 CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

Ènostra					
Instrumental motivation	0.95	0.17	0.66	1.35	0.76
Altruits motivation	0.86	0.17	0.59	1.26	0.44
Seniority (new cohort)					
Old cohort	4.96	1.76	2.48	9.93	**0.00**
Gender (Men)					
Woman	0.77	0.27	0.39	1.52	0.45
Field of study (Degree or above in STEM)					
Degree or above in humanities	1.05	0.48	0.43	2.57	0.91
High school diplom or below	1.29	0.47	0.63	2.64	0.48
Age (18-30)					
31-40	0.18	0.15	0.04	0.89	**0.04**
41-50	0.09	0.07	0.02	0.45	**0.00**
51-60	0.08	0.06	0.02	0.37	**0.00**
61-70	0.04	0.04	0.01	0.25	**0.00**
More than 70	0.07	0.07	0.01	0.45	**0.01**

N = 288 CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

Table 4.3: Ordered Logit Estimates-Empowerment

	Odds ratio	SE	95% CI LL	95% CI UL	P
Ecopower					
Instrumental motivation	1.26	0.04	1.19	1.33	**0.00**
Altruits motivation	1.34	0.04	1.27	1.42	**0.00**
Gender (Men)					
Woman	0.68	0.05	0.60	0.78	**0.00**
Age (18-30)					
31-40	1.30	0.32	0.81	2.10	0.28
41-50	1.28	0.31	0.80	2.04	0.30
51-60	1.46	0.35	0.91	2.32	0.11
61-70	1.62	0.38	1.02	2.58	**0.04**
More than 70	1.87	0.46	1.15	3.02	**0.01**
N = 5114 CI = confidence interval; *LL* = lower limit; *UL* = upper limit.					

	Odds ratio	SE	95% CI LL	95% CI UL	P
Ènostra					
Instrumental motivation	1.16	0.15	0.90	1.50	0.26
Altruits motivation	1.31	0.20	0.96	1.77	0.09
Gender (Men)					
Woman	0.62	0.14	0.39	0.97	**0.04**
Age (18-30)					
31-40	2.50	2.00	0.52	11.97	0.25
41-50	2.37	1.85	0.51	10.99	0.27
51-60	1.61	1.24	0.35	7.33	0.54
61-70	1.48	1.18	0.31	7.06	0.63
More than 70	1.58	1.36	0.29	8.56	0.60
N = 288 CI = confidence interval; *LL* = lower limit; *UL* = upper limit.					

Table 4.4: Ordered Logit Estimates-Sustainable behaviors

	Odds ratio	SE	95% CI LL	95% CI UL	P
Ecopower					
Instrumental motivation	0.92	0.03	0.86	0.98	0.09
Altruits motivation	1.69	0.06	1.59	1.80	**0.00**
Seniority (new cohort)					
Old cohort	1.29	0.09	1.14	1.47	**0.00**
Gender (Men)					
Woman	1.51	0.12	1.29	1.77	**0.00**
Field of study (Degree or above in STEM)					
Degree or above in humanities	1.30	0.10	1.12	1.50	**0.00**
High school diplom or below	0.86	0.08	0.72	1.02	0.09
Income (above the median)					
Under the median	1.29	0.13	1.05	1.58	**0.02**
Occupation (Professional and technical occupations)					
Higher administrator occupations	0.71	0.08	0.57	0.88	**0.00**
Clerical occupations	0.78	0.08	0.64	0.94	**0.01**
Sales occupations	0.73	0.12	0.53	1.02	0.07
Service occupations	0.98	0.10	0.80	1.20	0.82
Workers (skilled/semi-skilled/unskilled)	0.67	0.07	0.54	0.83	**0.00**

N = 5114 CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

	Odds ratio	SE	95% CI LL	95% CI UL	P
Ènostra					
Instrumental motivation	0.89	0.19	0.59	1.35	0.58
Altruits motivation	1.64	0.32	1.12	2.40	**0.01**
Seniority (new cohort)					
Old cohort	1.00	0.47	0.40	2.52	1.00
Gender (Men)					
Woman	1.92	0.79	0.85	4.30	0.12
Field of study (Degree or above in STEM)					
Degree or above in humanities	0.79	0.41	0.29	2.18	0.65
High school diplom or below	0.96	0.44	0.39	2.34	0.93
Income (above the median)					
Under the median	0.68	0.35	0.25	1.84	0.45
Occupation (Professional and technical occupations)					
Higher administrator occupations	0.85	0.98	0.09	8.13	0.89
Clerical occupations	0.76	0.32	0.33	1.72	0.51
Sales occupations	1.62	1.88	0.17	15.79	0.68
Service occupations	0.44	0.37	0.09	2.23	0.32
Workers (skilled/semi-skilled/unskilled)	1.44	0.98	0.38	5.47	0.59

N = 288 CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

Chapter 5: Paper 3: Are energy communities willing to bring more justice into the energy world?

Abstract

Thanks to their citizen's collective form of management and already gathering 2 million citizens in the EU, energy communities are currently praised for their capacity to harness energy and allow citizens to actively participate in the energy transition. Moreover, they are regarded as a way to satisfy peculiar moral criteria and reorganize the energy market toward more fairness. Theoretically, energy communities address procedural and distributional justice principles by allowing each citizen to participate in their management according to the principle '*one people, one voice* while recognitional justice, instead, seems to be acknowledged in their inclusive views. Notwithstanding this, the relationship between energy justice and energy communities is far from taken for granted and needs to be better investigated especially at a time where these organizations become more and more financially attractive and could undermine their disruptive potential at the social level.

Based on a comparative case study between *Ecopower*, in Belgium, and *ènostra*, in Italy (N=5402), this paper examines shareholders' self-assessment on the three tenets of energy justice (distributional, procedural, and recognitional). Findings show that energy justice is generally present in both organizations but at a lowest level than expecting. For example, a significant minority of the shareholders disagrees with the principles of energy justice, while some bias showing that social inequalities could appear in the procedures are also present. Moreover, the local contexts play a strong role regarding the importance given by shareholders on energy issues, more stressing by ènostra's shareholders. In conclusion, if energy communities aim to be transformative, they must work on this issue by implanting support policies.

5.1. Introduction

1. As we have discussed previously the fitness of the concept of energy communities with energy democracy, in this chapter, I will question if energy justice is considering as an important issue by the shareholders of these organizations, caring for their social and political role to bring changes.

2. Somehow it has been considered that energy communities naturally care for fairness (Jenkins 2018; EU 2020; European Parliament 2018; van Bommel and Höffken 2021; Lacey-Barnacle 2020). More than, energy justice is also at the core of these initiatives, which aims also to achieve a just representation of all citizens as a pre-condition for their democratic goal (Jenkins 2018; Angel 2016). More precisely and theoretically, in climate justice literature, energy justice is traditionally separated into three tenets: distributive, procedural, and recognitional justice (Eames and Hunt 2013; Jenkins 2019; Jenkins et al. 2016; Lee and Byrne 2019). Thus energy communities contribute to building "*a global energy system that fairly distributes both the benefits and burdens of energy services and one that contributes to more representative and inclusive energy decision-making*" (Sovacool et al. 2017).

3. However, some other studies raise doubts regarding energy communities' ostensible fairness. Despite the apparent focus on energy justice, it is likely that a gap appears between the desired fairness of energy communities and their concrete realities (Hanke, Guyet, and Feenstra 2021). First, they underline the fact that energy communities are characterized by the substantial homogeneity of their members, who are generally males with high levels of income (Yildiz 2014; Fraune 2015). In this sense, it is extremely significant the fact that for example the problem of the underrepresentation of some social groups has been emphasized only recently. (Martiskainen, Heiskanen, and Speciale 2018; Łapniewska 2019). In addition to this and in contrast with their social values of equality, equity, and solidarity, few substantial efforts have been made to assess inequalities in access and participation (Hanke, Guyet, and Feenstra 2021).

4. Regarding the theory on collective action initiatives, it could be expecting that caring for energy justice in their organizations, considering as a form of altruism, is far from being for granted (Nyborg 2018; Olson 1965). Even declaring caring for social issues, participants would be more likely to adopt selfish behaviors, maximizing in this case, their own interest. This means that it might be possible that shareholders do not consider relevant to consecrate one part of their resources to focus on the social dimension of energy communities' projects (Devine-Wright 2019; Bauwens 2016). In this case, the risk is that if shareholders are at the end few preoccupied by justice goals, they can consider energy communities similarly to the idea of a classical business model (Venkataraman et al. 2016).

Especially, in the biggest organizations, size can be an important variable where people could be less likely to conform their identify to the expectations of their organizations(Poteete and Ostrom 2004). The maturity of energy communities can also lead to impact the level of energy justice. For the initiatives having already a high return on their benefits, their shareholders could be more attracted by economic benefits while for those being still at the niche level, people could be more driven by social issues in their participation (Bauwens, Vaskelainen, and Frenken 2022).

5. Therefore, this chapter proposes to fill this gap, question this common picture of energy communities, by asking directly the shareholders of energy communities on the importance given to energy justice and opening the discussion on the real willingness of these organizations to bring real changes (Coy et al. 2021; Batliwala and Reddy 2003; Martiskainen, Heiskanen, and Speciale 2018). Our first research question is thus the following: **Is energy justice considered an essential issue by energy communities' shareholders?** This chapter aims to contribute to the literature regarding energy justice and energy communities since from a micro-level, little is known about. Another purpose of this work is also to compare two main energy communities in the European Union: ènostra in Italy and Ecopower in Belgium, where it can be expecting that geographical differences will be observed to shape the concept of energy justice (Murphy 2015): **are shareholders more caring for energy justice in Italy?**

5.2. Theoretical framework: the third lens of energy justice in energy communities

6. Literature referring to energy justice consider generally this issue under three independent dimensions: distributional, procedural, and recognitional(Astola et al. 2022). In this view, energy communities, aiming to engage citizens in the energy transition in a non-discriminatory and inclusive manner, are oft-cited as ideal organizations to foster energy justice in a new energy market.

7. Indeed, considering first its distributional dimension, energy communities look a priori very well designed to fit with distributive justice, which is concerned with how access is guaranteed, how outcomes are distributed across people, and whether this distribution is morally acceptable. In these organisations, the entrance fee is judged low, allowing each to join these projects even among those holding fewer resources (Hanke, Guyet, and Feenstra 2021). Then, energy communities are classified as a joint product (Cornes and Sandler 1984; Bauwens 2017). This means that even if shareholders have individual interests, gaining money through the return on equity, in this kind of organization, energy remains before all a new common, managed also to improve global well-being (Berka and

Creamer 2018). Especially, a strong emphasis is placed on the outcomes' fairness with limited profits: in our cases, the return on equity corresponds to 2% for *ènostra* and 6% for *Ecopower* (ènostra 2021). A part of these returns is also dedicated to developing investments in new installations or concrete actions on the territory. The idea of energy communities is thus fundamentally political, with a new energy model redistributing benefits previously held by private companies or the state to the whole community, living generally near the project (Becker and Kunze 2014).

8. The second tenet of energy justice is its procedural aspect – where, again, energy communities seem to be relevant organizations. Procedural justice, instead, regards the fairness and legitimacy of the planning and decision-making processes, such as access to information, membership (Konow 2001; Vermunt and Törnblom 1996). In this respect, energy communities appear again particularly suited to this dimension since these initiatives foster the participation of their shareholders Indeed, the literature on energy justice tends to be normative by considering that democratic process are related to fairness (Astola et al. 2022). Energy communities are based on the principle of "*one people, one voice*", which means that decisions are taken together and by vote during the general assembly held once a year. The cooperatives encourage also their shareholders to develop skills as they build people's capacities on energetic issues (Jenkins 2019; Hanke, Guyet, and Feenstra 2021). For example, ènostra organized webinars online regarding energy issues for their shareholders, while Ecopower regularly meets them during their "Energy Coffee" and organizes film projections on sustainability as We are the power.

9. Finally, in the energy justice literature, recognition, the third tenet, is interlinked and overlaps generally with distributional and procedural justice (van Uffelen 2022). Emphasizing recognition allows focusing on the specific difficulties that peculiar social groups can meet when joining and fully participating within an energy community. More precisely, following Honneth's theory, I consider recognition is a cross-cutting dimension capable of creating distortions in the distributional and procedural aspects of energy justice. If not addressed, this could create strong inequalities of participation, leading to reproduce and even produce the invisibility of some social groups (Coolsaet and Néron 2020; Martin et al. 2016; Martiskainen, Heiskanen, and Speciale 2018; Agarwal 2001; Lacey-Barnacle 2020). For example, distributional justice can be far from being reaching if the social barriers to join an energy community are not addressed, as the difficulty to invest in these initiatives for the lowest income. Regarding the fairness of the procedures, the absence of bias is an essential element since some categories could feel discriminated and unable to fully participate (Agarwal 2001). This is why in this work, recognitional justice is considered as an interdependent of distributional and procedural justice as presenting in the framework below (**Table 5.1**).

Table 5.1: Energy justice in energy communities

	Elements	**Indicators**		**Elements**	**Indicators**
Distributional justice: investigates where energy injustices emerge, both in production and consumption	Access to outcomes in the form of benefits and services	Energy as a common	**Recognitional justice:** awareness towards those generally excluded from the energy world, as people with low income and women	Fair distribution of benefits	Focus on underrepresented categories to access and benefit from the outcomes of these initiatives
Procedural justice: refers to equitable procedures that allow all local stakeholders to engage and participate in the energy transition in a non-discriminatory and inclusive manner	Access to decision making	Governance based on the principle '*one people, one voice*'		Absence of bias in the procedures	Feeling discriminations

Source: Adapted by the author from Hanke et. Al (2021)

5.3. Methodology

10. ènostra and Ecopower present resemblances in terms of design with the status of cooperatives while sharing governance based on the principle of 'one people, one voice'. They are also members of Rescoop and thus adhere to its charter of values, vehiculating the idea of energy justice (Rescoop 2020). They are also the two biggest initiatives in their respective country. However, they differ fundamentally in terms of size and maturity as explained in the chapter 2 methodology, which could impact the level of social norms and people fitted with the common idea of energy communities caring for the others. Their level of acceptance regarding energy justice principles could also be impacted by the maturity and the size of these initiatives.

11. Using a 3-Likert scale, we define the dependent variables, using the shareholders' level of energy justice, operationalized following the framework presented in the **Table 5.1**.
12. Within **the distributional aspect**, I use the item "*Energy should be managed by citizens as a common good and not as a private issue*", the aim was to understand how shareholders perceive the idea of a collective form of management – i.e., open to all citizens and not a private issue. The second variable has also been built to assess the difference between the importance given by shareholders to economic and social issues. For the **procedural justice**, the following statement is used to grasp to what extent shareholders agreed with the principle one people one vote: "*The shareholders who have invested the most should have more power than the others*". As said in the theorical framework I consider recognition as a transversal dimension of distribution and procedures. Therefore, I choose

these two following indicators. Regarding **recognition in distributional justice**, I identify the interest of shareholders regarding the difficulties of some people to participate "*Our cooperative should intervene on the poorest sections of the population to help reducing energy poverty*". "*Energy should cost less for the poorest people in our society*", "*I would like that the cooperative focus on the inclusion of the poorest section of the population to help them to improve their competences on energy management*". (Reliability 0.79). To measure **procedural justice and recognition**, I identify if people will feel equally at ease, asking to them "*I don't feel comfortable to intervene in the cooperative*". Coming to the independent variable, since a part of the literature has associated the concept of energy justice with energy communities, it is hypothesized that energy justice should be highly present in both cooperatives. However, as mentioned before, it is also supposed that energy justice should be higher in Italy rather than in Belgium.

13. As independent variable, the cooperative: either Ecopower or ènostra has been chosen and models have been realizing considering their seniority, in order to test size and maturity. Moreover, shareholders' socio-economic characteristics are also integrated in the different models considered as control variables since they could play an important role in shaping the shareholders' preferences: for example, people with the highest income could disagree with this organizational principle, while those studying humanities could be more preoccupied with energy communities' social purposes. regarding the socio-economics variable, used as control variables, it is also expecting that it might be those already experience more difficulties when joining these initiatives – as women, low-income populations, or people without a STEM academic background be the ones more supportive towards energy issues. To identify whether the independent and control variables could have a diverse impact on the level of energy justice across both energy communities, interaction effects are also checked, and when significant (p-value superior to 0.05) and pertinent, results are reported.

5.4. Results

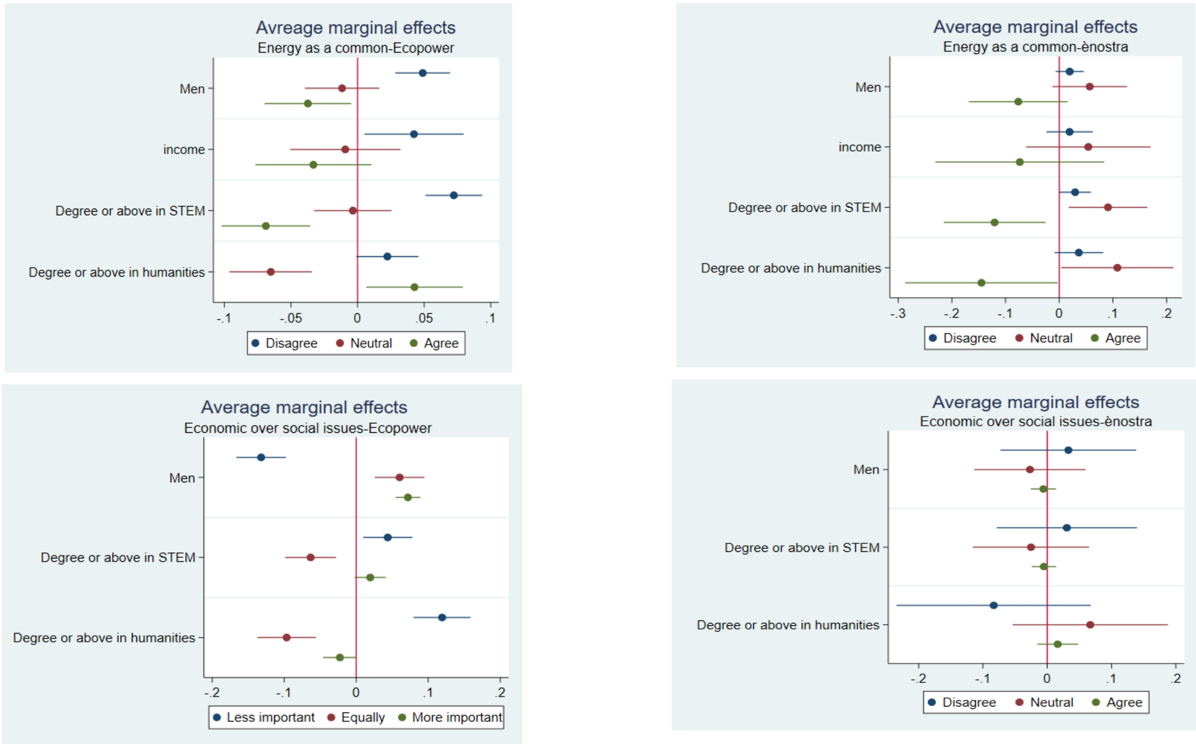
Table 5.2: Difference between the shareholders of Ecopower and ènostra on energy issues

	Ecopower		Ènostra				
	M	SD	M	SD	T	P	Cohen's d
Common good	2.60	0.01	2.83	0.03	-5.65	0.00	0.16
Profit over social issues	1.69	0.01	1.29	0.03	10.39	0.00	0.29
Caring for people with difficulties	2.22	0.01	2.59	0.04	8.49	0.00	0.23
Not proportional decision-making	0.80	0.01	1.52	0.06	12.26	0.00	0.33
Not feel good to intervene	1.90	0.01	1.67	0.06	6.57	0.00	0.18

14. Starting from distributional justice, the idea that citizens should be at the core of a new energetic system out of the private logic of the market is primarily diffused among shareholders. The results show that overall shareholders in energy communities care for collective energy ownership and that they also tend to focus more on social issues rather than individual economic benefits. However, a difference appears to emerge between the two considered cooperatives (**Table 5.2**), since *ènostra* shareholders are more likely to agree with the fact to manage energy as a common (84%) than *Ecopower*'s ones (72%). In addition to this, respondents who disagree with this idea are 4% and 12% respectively, meaning that this aspect is less supported by *Ecopower* shareholders. Finally, the fact that social issues should be more important than profit is stressed by a 43% of the overall sample, while 47% considered economic issues as important as social issues and 10% less important. But again, the shareholders of *ènostra* are much more likely than those of *Ecopower* to consider social issues as more important than economic benefits (74 against 41% for *Ecopower* shareholders).

15. Coming to the control variables, gender appears more meaningful for the model of Ecopower. Gender is significant for the first assumption on the management of energy as a common (and not as a private issue). This is also the case for the importance of social issues, where for example, while the 73% of women put social issues before profit, only the 65% of men do the same. Income is only significant for Ecopower regarding the idea of common management, where people with the lowest income are more likely to agree with this assumption. Finally, in both cooperatives, shareholders with a STEM degree are less likely to agree with the preeminence of social issues and recognition; instead, people who graduated from humanities are the most likely to agree with them, showing that they appear more interested about the social goals of these initiatives.

Graph 5.1: Shareholder's self-assessment on distributional justice

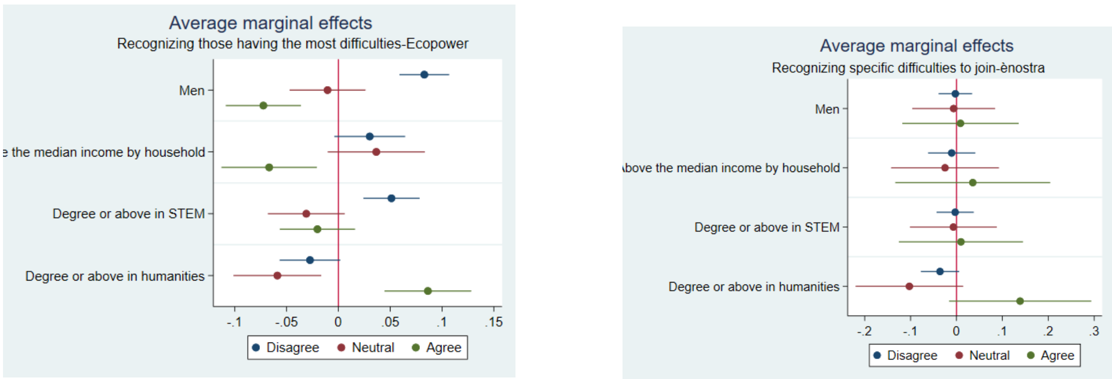


16. Recognition in distributional justice is less emphasized since, at the same time, not all shareholders also recognize the difficulties of some social groups to access, fully participate, and benefit from these initiatives (**Table 5.2**). The topic of the importance for the cooperatives to consider the difficulties of some social groups relative to energy was not assessed in the same way by the shareholders of *ènostra* and *Ecopower*. Italian shareholders are more prone to agree (66%) that the cooperative should consider people having the most difficulties and that they could benefit from the cooperative getting included in energy issues. On the other hand, only 39% of *Ecopower*'s shareholders agree with this statement. Deepening the analysis on the different dimensions of the index, two main differences can be identified. The first regards the intensity of the answers, as members of *ènostra* are more likely to *strongly agree* with the proposed items, while those from *Ecopower* are more likely to simply agree. The second significant difference, instead, concerns the item on "acting" to reduce energy poverty. If this dimension, highlighted as fundamental to bring more justice in the energy world, is particularly emphasized by *ènostra* as the 30.91% of respondents strongly agrees and the 43.96% agrees, the score among *Ecopower*'s shareholders is respectively 9.61% and 32.00%, while around 20% of the *Ecopower's* respondents disagrees with such pursuit.

17. Moreover, the gender variable is particularly important for the cooperative Ecopower. Women are more likely to agree on the fact that cooperatives must include poor people in their management.

Conversely, the male effect in this regard is negative, and gets even smaller across cut points: therefore, males tend to be less supportive of poor people's presence in energy communities than females. The most significant difference between the two, however, is that males are more likely to place themselves in the neutral answer category rather than overtly disagreeing with this possibility. These diverging attitudes could be explained by the theory of social roles, according to which women tend to be more communal (caregiving) when compared to men, who instead appear to be more agentic (breadwinning) (Ellemers 2018). Then the field of study does not play in the same way since the shareholders of Ecopower having a degree in STEM are the most likely to emphase the social issues over profit while in the case of ènostra, the shareholders having a degree in humanities are the most likely to agree with this issue. In this case, the problem represented by the homogeneity of energy communities' participants has to be considered. Both cooperative show also different patterns regarding the socioeconomics characteristics which can explain the differences between both cooperatives (van Veelen and Haggett 2017). As shown by the sample's description, in the case of *Ecopower* shareholders were mostly men with high incomes, while in *ènostra* women were much more present. Since the profile of *Ecopower's* shareholders risks being less concerned with energy justice, this could create a vicious circle and a lock-in effect: men having a medium or high income could, in fact, feel less concerned about the problem of inclusion as well as of the idea of collective management. In this case, energy justice issues will likely to not be addressed, reinforcing the cooperative's homogeneity, and thus discouraging diversity (Little 2002; Catney et al. 2014). It is for these reasons that we cannot ignore the fact that energy communities could be at risk of (re)producing inequalities by reinforcing the homogeneity of collective action initiatives, and therefore the substantial inequalities already present in the energy world (Pearl-Martinez and Stephens 2016; Baruah 2017).

Graph 5.2: Average predictive margins- recognizing those having the most difficulties



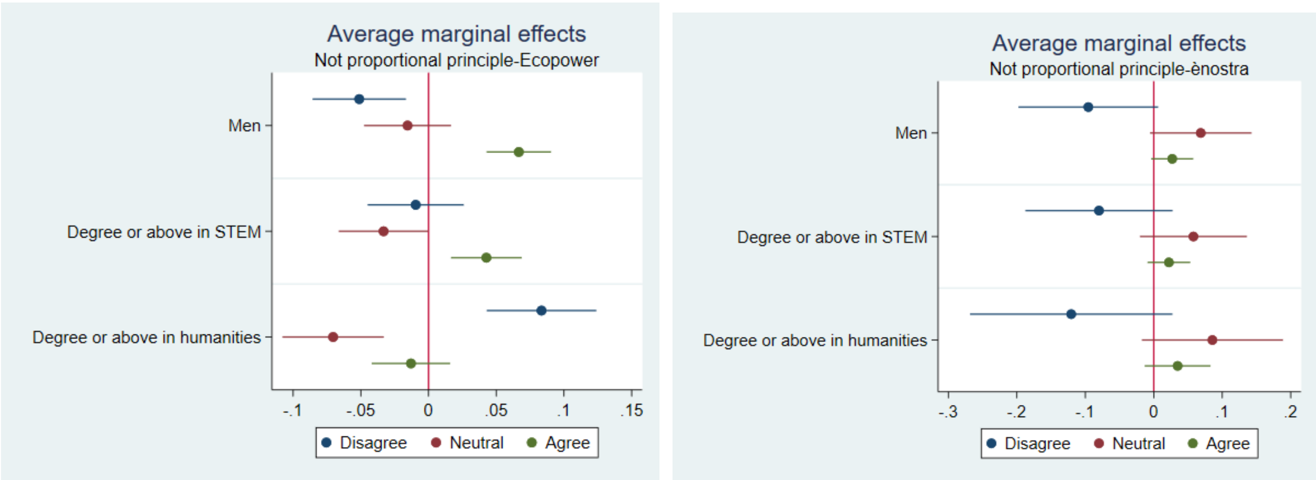
18. In this sense, results are surprising since people participating in these initiatives have been considered somehow militant and engaged, which is in line with the fact, the 91.26% of shareholders reached by this study has also declared that the social impact of their cooperative is an important

issue. A first explanation could to this difference between both cooperatives could be related to the fact that organizations like Ecopower could also be more profit-oriented (Bauwens et al. 2022). Secondly, I cannot exclude that shareholders in energy communities may lack awareness regarding energy justice: as it is the case for society in general, people are not always conscient of the barriers that peculiar social groups meet when trying to be included in the societal life (Shankardass et al. 2012).

19. When I approach the fundamental principle of procedural justice, on which energy communities should be funded, it can be actually seen that not all shareholders agree with the importance of guaranteeing an equitable representation of members independently from their initial investment. Asking if the shareholders agree with: “"*The shareholders who have invested the most should have more power than the others*", in *Ecopower*, only half of Ecopower's shareholders disagree on this assumption, while in the case of *énostra* this proportion is of three shareholders out of four. The fact that in *Ecopower* there seem to be a lower score in terms of agreement towards the principle of procedural justice could be explained by the fact that people joining this initiative might be less driven by social issues, as it already proposes a high return on equity. Therefore, even though it is true that overall social issues are felt as important, the main risk in which energy communities may incur is that when growing energy justice may remain more of an aesthetic ideal to adhere to, rather than representing a genuine willingness to act and foster social change to go towards more democracy and justice (Van Veelen 2018; van Veelen and Eadson 2019). Indeed, it is only by guaranteeing to each citizen the possibility to produce, consume, and benefit from economic benefits deriving from their own energy that these initiatives can be considered transformative both politically and socially.

20. In addition to this and as it was the case for the distributional lens of energy justice, in both cooperatives, men are more likely than women to disagree with this very same principle. This result, therefore, appears to be in line with the ones proposed by the academic literature sustaining that, in general, women tend to adopt more cooperative behaviors when compared to men's (Allen, Lyons, and Stephens 2019; Lazoroska, Palm, and Bergek 2021). Even though people with a STEM background were the ones less likely to act on inclusivity, they also appear to be the ones who care the most for the principle of *‘one people, one voice’*. In this case, however, a more structured qualitative analysis should be undertaken to better understand how the field and the level of study could impact these relationships. The risk is to lack the perspective of social empowerment, allowing by these initiatives.

Graph 5.3: Average predictive margins- proportional principles



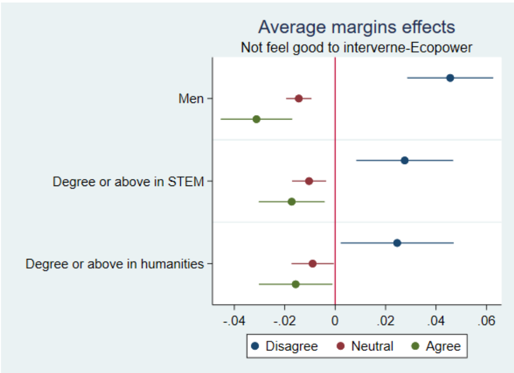
21. Then, analyzing procedural justice under the lens of recognition, regards to assess the absence of bias in the cooperative. A positive result is that in both, only a minority of shareholders agrees to not feeling at ease to intervene in their organizations showing that at the procedural level no discrimination seems to be present. At the same time, however, this good result must be counterbalanced by the fact that there are only few who disagree with this statement (13,59% and 33.89% for *Ecopower* and *ènostra*, respectively), while the majority of shareholders is more likely to have a neutral opinion on the issue. This could be explained by the fact that, overall, only a minority of shareholders actively participate in the cooperatives: consequently, they could express difficulties in evaluating possible bias in their interactions (i.e: in this survey, around one people out of ten declare assisting to the general assembly).

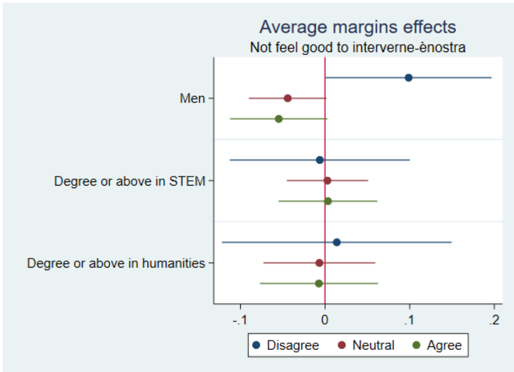
22. Notwithstanding this limit, some warnings relating to the existence of biases in these cooperatives could actually become an asset. In the first place, in fact, in Ecopower men are more likely than women to disagree on not feeling at ease within the cooperative, while women are more likely to have a neutral opinion: as evocated before, overall women tend to participate less in the cooperative's activities, to the point that they are two times less likely to join the general assembly. Then, the same results are also found for people with low income when compared to those having an income above the national median: in this case, however, they are as likely to participate in the general assembly as are other members.

23. These findings show that recognition is an essential aspect to take into consideration when discussing the procedural aspects of energy justice, since it is very unlikely that all social categories have the same possibilities to fully participate in the cooperatives. This becomes strikingly evident in the case

of women: as generally meetings tend to be organized in the late afternoon (6:00-8:00 PM), especially when having children, it could be very difficult for them to attend (IRENA 2019). Moreover, when we consider that women with income below the national median are even less likely to participate in the cooperatives' activities, the necessity of implementing gender-friendly timetables or other policies to promote women's participation in energy communities becomes almost self-evident. Finally, these results underling the pivotal importance of adopting an intersectional approach to the study of inequalities in the energy world (Terriquez, Brenes, and Lopez 2018).

Graph 5.4: Not feel good to intervene in the cooperative





24. Finally, another interesting point has been to question the impact of the size and the maturity of these initiatives, hypothezing that they could impact the importance given by the shareholders on these initiatives. Controlling for the size, choosing a period where Ecopower was similar to ènostra, it is interesting to see that the shareholders of Ecopower have been always less caring for energy justice than those of Ecopower. The impact of growing is also few significant for Ecopower since their level of energy justice is quite constant. For example, regarding the fact to care for energy poverty, the one belonging to the group with a similar size compared to the shareholder of ènostra are 39% to consider it as an important issue and they are 41% for those belonging to the group size corresponding to those superior to 10 000 shareholders. Regarding the importance of profit on social issues they were 8% to care more profit than social issue and 11% for the others group. Regarding the maturity and those joining more recently ènostra, it is even unexpecting, since regarding the economical turn take by some energy communities, and the fact that the pioneers' participants will be more militant, that the most recent cohorts tend to care slightly more for these issues. In this case, the reason could be the one I highlighted before: regarding the importance to raise shareholders awareness by putting energy justice on agenda, which is done for some years in these organizations.

25. Very interesting is also the fact that theorically, this means that the traditional underlined determinant of collective action are few significant regarding the way to shape energy justice

compared to the local and contextual factors in which are anchored the cooperatives (Bosch and Schmidt, 2020; Fernandes-Jesus et al., 2017). If the idea was that the kind of shareholders would change when growing, energy justice is more emphasized by ènostra, than Ecopower particularly share the transformative views and actions of these initiatives whatever the size (Dóci 2021) . These results can be explained by the fact that, in Italy, the civil society – and especially the cooperative sector – is seen as one of the principal actors in terms of caring for people's needs, often replacing the role of the state, in a capitalist system very dualist compared to Belgium. As a consequence, Belgium has one of the lowest inequality and energy poverty levels among European countries, while Italy has one of the highest. In particular, the risk of poverty or social exclusion concerns about 20.7% of Belgium's inhabitants against the 30% of Italy's. In addition to this, according to the EU Energy Poverty Observatory (EPOV), in 2018, 5.2% of people in Belgium could have not kept their homes adequately warm, while that was the case for 14.1% of people in Italy.

26. Energy communities have been firmly associated with the concepts of energy democracy and, thus, of energy justice. In particular, energy justice is a fundamental characteristic of democracy, as it guarantees a fair representation of each citizen in the energy transition. In this light, everybody could access and be included in the management of initiatives such as energy communities, and therefore benefit from the outcomes of renewable energy technologies (e.g., selling energy, return on equity and on their investment) (Martiskainen, Heiskanen, and Speciale 2018; Hanke and Lowitzsch 2020; Hoicka et al. 2020). However, as the present analysis has shown, the fact that people adhere to a democratic energy management model stressing inclusivity does not necessarily guarantee that people will share the same views on and care for energy justice. Indeed, if as expecting by the first hypothesis, people joining energy communities generally tend to share the idea of a new energy world based on more fairness, still many shareholders have been questioning the transformative views in all the three dimensions of energy justice: distributional, procedural, and recognitional.

27. Without a strong focus on energy justice, energy transition would let apart maybe those for who the energy transition could be the most disruptive. low-income people are largely absent; nevertheless, they are the most likely to be touched by energy poverty, or to use alternative materials to get energy – which can lead to substantial, negative consequences in terms of health. In this light, women and children are the ones who might suffer from energy poverty the most, as around 4 million of them dies each year from indoor pollution (Clancy 2002). Women are also underrepresented in the energy field and especially in energy communities but, at the same time, are at the core of household and thus the energy use (Aassve, Fuochi, and Mencarini 2014). In this sense, these finding are a twofold invitation. First, to pursue further research in order to better identify how specific contexts could

impact the link between energy communities and energy justice. Second, this study shows that fairness is much more emphasized by Italian shareholders compared to Belgian, appealing to focus more on the southern European countries, understudied at the moment, a strong and fertile ground to exchange and diffuse interesting best practices.

5.5. Conclusions

28. More deeply and generally, my first recommendation regarding my results would be to set an obligation for energy communities to put energy justice explicitly on their agenda and by adopting specific measures to promote inclusivity: this appears to be particularly important when a large part of the disruptive potential of energy communities led to the development of their ability of bringing all citizens into the energy transition. One of the main issues is related to shareholders' views, since they may not always be aware of the importance of the energy justice's principles. In fact, by stressing the potential of energy justice in energy communities without having previously worked on the topic within their own organizations, the main risk becomes to assume that shareholders would be able to grasp the complexity of energy justice without issues.

29. Therefore, even more problematic is the fact that, when we take for granted the fairness of these initiatives, the concrete effects produced could be unfair: for example, non-members may be blamed for their unwillingness to take part in these initiatives, without promoting a proper reflection on the existence of difficulties for them in entering and actually joining the energy communities' activities. Some innovative measures aiming at recognizing the barriers to join and participate in energy communities, as well as to promote inclusivity in cooperatives' participation, have been tentatively set up. With 51% of women believing that they are excluded from the energy transition (Feenstra 2021; Clancy 2019; 2020), the launch of the new platform 'Equity', created by the European Union and Rescoop's work group, represents an excellent opportunity to create a benchmark for best practices, thus contributing to the development of inclusivity.

30. Directly linked to this, another important recommendation is to create other working groups on other social discriminants, such as income or ethnicity, which could then collaborate to reach and promote joint solutions. In this light, the adoption of an intersectional perspective to analyze energy justice is fundamental, as inequalities tend to overlap with one another – such as in the case of women with low income. Incentives could also be stronger by imagining that one part of the benefits will finance social programs – for example, by allocating free shares for a specific target population to promote their entrance in the cooperatives.

31. To conclude, we cannot ignore that – everything considered – it could be hard for these organizations to assume this new role of leading and fair actors in the energy transition. Even though in some countries (such as Italy) people may have the most need in terms of energy justice, energy communities may be already struggling to survive. It is therefore necessary to raise the awareness on the topic among the broader population, while also bringing substantial resources to help energy communities' survival and promote energy justice (Hanke, Guyet, and Feenstra 2021).

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5.7. Appendix

Table 5.3: Energy as a common

	Odds ratio	SE	95% CI		P
			LL	UL	
Ecopower-Disagree					
Gender (Women)					
Men	0.57	0.08	0.44	0.75	**0.00**
Field of study (High diplom or below)					
Degree or above in humanities	0.45	0.06	0.35	0.60	**0.00**
Degree or above in STEM	0.74	0.12	0.54	1.02	0.07
Income	0.66	0.12	0.45	0.95	**0.03**
Ecopower-Neutral					
Gender (Women)					
Men	0.83	0.07	0.45	0.95	**0.03**
Field of study (High diplom or below)					
Degree or above in humanities	0.71	0.06	0.60	0.85	**0.00**
Degree or above in STEM	1.27	0.13	1.04	1.55	**0.02**
Income	0.85	0.09	0.68	1.05	0.14
Ènostra					
Gender (Women)					
Men	0.52	0.22	0.23	1.19	0.12
Field of study (High diplom or below)					
Degree or above in humanities	0.33	0.15	0.14	0.82	**0.02**
Degree or above in STEM	0.29	0.16	0.10	0.85	**0.03**
Income	0.55	0.36	0.15	1.98	0.36

Table 5. 4: Profit over social issues

	Odds ratio	SE	95% CI		P
			LL	UL	
Ecopower-Less important					
Gender (Women)					
Men	0.57	0.07	0.43	0.72	**0.00**
Field of study (High diplom or below)					
Degree or above in humanities	-0.22	0.07	-0.39	-0.07	**0.00**
Degree or above in STEM	-0.52	0.09	-0.70	-0.35	**0.00**
Income	-0.03	0.09	-0.23	0.15	0.70
Ecopower-Equally important					
Gender (Women)					
Men	1.02	0.17	0.69	1.35	**0.00**
Field of study (High diplom or below)					
Degree or above in humanities	0.14	0.12	-0.09	0.38	0.24
Degree or above in STEM	-0.29	0.15	-0.59	0.01	0.06
Income	0.11	0.16	-0.21	0.44	0.51
Ènostra					
Gender (Women)					
Men	-0.35	0.33	-0.99	0.29	0.29
Field of study (High diplom or below)					
Degree or above in humanities	-0.42	0.36	-1.12	0.28	0.24
Degree or above in STEM	0.19	0.40	-0.59	0.98	0.63
Income	-0.04	0.41	-0.84	0.76	0.92

Table 5.5: Care for others

	Odds ratio	SE	95% CI		P
			LL	UL	
Ecopower-Less important					
Gender (Women)					
Men	0.50	0.06	0.39	0.63	**0.00**
Field of study (High diplom or below)					
Degree or above in humanities	0.70	0.07	0.57	0.85	**0.00**
Degree or above in STEM	1.27	0.16	0.99	1.63	0.07
Income	0.79	0.11	0.60	1.05	0.10
Ecopower-Equally important					
Gender (Women)					
Men	0.74	0.06	0.64	0.86	**0.00**
Field of study (High diplom or below)					
Degree or above in humanities	0.92	0.07	0.79	1.07	0.27
Degree or above in STEM	1.43	0.13	1.20	1.70	**0.00**
Income	0.76	0.07	0.63	0.91	**0.00**
Ènostra					
Gender (Women)					
Men	1.04	0.31	0.58	1.87	0.89
Field of study (High diplom or below)					
Degree or above in humanities	1.04	0.32	0.58	1.89	0.89
Degree or above in STEM	1.99	0.83	0.87	4.53	0.10
Income	1.17	0.45	0.55	2.50	0.68

Table 5.6: Proportionality of the decisions

	Odds ratio	SE	95% CI LL	95% CI UL	P
Ecopower-Disagree					
Gender (Women)					
Men	1.23	0.09	1.07	1.42	**0.00**
Field of study (High diplom or below)					
Degree or above in humanities	1.04	0.08	0.90	1.20	0.60
Degree or above in STEM	0.71	0.06	0.60	0.84	0.00
Ecopower-Neutral					
Gender (Women)					
Men	1.69	0.18	1.37	2.08	**0.00**
Field of study (High diplom or below)					
Degree or above in humanities	1.35	0.13	1.11	1.63	**0.00**
Degree or above in STEM	0.90	0.11	0.72	1.14	0.38
Ènostra					
Gender (Women)					
Men	1.70	0.51	0.95	3.04	0.08
Field of study (High diplom or below)					
Degree or above in humanities	1.57	0.49	0.85	2.90	0.15
Degree or above in STEM	1.92	0.75	0.89	4.12	0.10

Table 5.7: Not feel good to intervene in the cooperative

	Odds ratio	SE	95% CI		P
			LL	UL	
Ecopower-Disagree					
Gender (Women)					
Men	0.53	0.06	0.42	0.67	**0.00**
Field of study (High diplom or below)					
Degree or above in humanities	0.79	0.09	0.64	0.98	0.03
Degree or above in STEM	0.97	0.12	0.75	1.24	0.78
Ecopower-Neutral					
Gender (Women)					
Men	0.83	0.11	0.64	1.08	0.17
Field of study (High diplom or below)					
Degree or above in humanities	0.80	0.10	0.62	1.03	0.08
Degree or above in STEM	0.58	0.09	0.42	0.79	**0.00**
Ènostra					
Gender (Women)					
Men	0.62	0.15	0.38	1.01	**0.05**
Field of study (High diplom or below)					
Degree or above in humanities	1.03	0.27	0.62	1.72	0.91
Degree or above in STEM	0.94	0.31	0.49	1.77	0.84

Chapter 6: Paper 4: Are energy communities gender friendly?

Abstract:

Thanks to their inclusive view, energy communities have been seen as a way to bring all citizens into energy transition. However, some warnings have been coming from the literature showing that women in collective action initiatives tend to be generally excluded. And indeed, women are few represented in these initiatives, where my sample shows that in a couple, men are in eight cases out of ten the one joining these organizations. One explanation for this situation is the weight of gender stereotypes since energy world, dealing with energy is considered as a masculine field where women tend to be judged less suited.

Therefore, this study chooses to directly question shareholders of two main energy communities in the European Union: Ecopower in Belgium and ènostra in Italy (N=5402). The aim is to identify if gender stereotypes, still largely understudying, are present in these organizations. Our results show that in both countries either in terms of self-assessment or judgement, energy communities are far from being exempt of gender stereotypes. To become inclusive especially at a time where they are emphased to bring all citizens into energy transition, energy communities could not avoid creating a gender inclusive policy changing the current representation of women and energy.

6.1. Introduction

1. If collective action initiatives have led to reconsidering through energy communities the role of the society in fostering energy transition (Wierling et al. 2018), they could also reflect on social barriers to which some social categories are confronting and hinder their fully participation in the energy transition. This is especially true for women since as shown already by Agarwal, during the interactions between members, power relations related to gender strongly present in society have also been reflecting in these initiatives (Agarwal 2001). This chapter refers to our main problematic identifying how far energy communities could be really considered as a transformative political project, able to bring all citizens into energy transition, by addressing the obstacles that some categories of citizens could face as gender stereotypes (Becker and Kunze 2014). Indeed, contrasting with idealized vision where all citizens are at the core of a new energetic system, recent studies show that people participating are socially homogene. Especially, one current problem relates to gender with the lack of women's presence in energy communities (Fraune 2015; Łapniewska 2019). Looking at recent studies, the women's participation rate is around 20% and they are also mostly absent from

the executive committee (Fraune 2015; WWEA 2021). These figures are incredibly worrying since energy communities appear even more discriminant than the traditional sector, where women represent 22% of the workforce for fossil-fuel energy and 32% for renewable energy (Pearl-Martinez and Stephens 2016).

2. Paradoxically, this issue is unexpecting since energy communities have somehow been identified as gender-friendly organizations thanks to their communal management and the idea of renewable energy-related to nature and motherhood. (Allen, Lyons, and Stephens 2019; Lazoroska, Palm, and Bergek 2021a; Paula Abreu Marques 2021). They promote also inclusive views as for example integrating a gender focus into the status of these organizations. Then, some pioneer energy communities have been led exclusively by women, for example, Windfang. This cooperative was founded in Germany in 1991 by a group of women studying engineering and natural sciences and produces today more than 11 000 MW hours/year with a return on equity of 4% for their shareholders (exclusively women)[12]. Therefore, some attention has been recently rising on this contradiction to understand better what can hinder women's presence in energy communities and, more generally, in the energy transition.

3. One of the explanations could be the presence of solid gender stereotypes, defined as: "*general expectations about members of particular social groups […] that leads people to overemphasize differences between groups and underestimate variations within groups"* (Ellemers 2018). Indeed, even dealing with renewable energy, energy communities are still related to the energy field, a male domain, where extensive literature on STEM (Science, Technology, Engineering e Mathematics) has already shown how stereotypes and bias can put away women from a specific field (Wang and Degol 2017). Thus, it is very likely that social representations could cross energy communities where women could feel less at ease and men more fitted (Baruah 2017; Baruah and Biskupski-Mujanovic 2021; Secules et al. 2018). For example, women could have the impression not having the required skills to participate in energy communities, even if a priori these initiatives are opened to each citizen (Łapniewska 2019). They could also feel that they are not in the right place and diminish their capacities to act in these organisations compared to men.

4. Furthermore, and despite warnings raising on their lack of gender inclusivity, for the moment, few energy communities have taken gender into account in their organizations, as if inclusivity was an

[12] https://womengenderclimate.org/gjc_solutions/windfang-a-womens-cooperative-that-projects-builds-and-runs-wind-turbines/

intrinsic attribute of these organizations (Clancy and Feenstra 2019; Hanke, Guyet, and Feenstra 2021). Instead, energy communities are still mostly framed as gender-neutral organizations without focusing on the gender inequalities present in this field (Allwood 2020; Clancy and Roehr 2003; IRENA 2019). Adopting a gender blindness view of these organisations without considering the possible barriers that women will meet such as gender stereotypes could lead to the disengagement of the few women, having already overcome the social barriers to investing in a renewable energy project. A second consequence is that it reinforces women's underrepresentation by discouraging other women from participating in these initiatives (IRENA 2019). The risk is that these initiatives forget half of the population and thus hinder the disruptive views of energy communities (Tjørring 2016). Indeed, women are at the core of energy uses and the most likely to care for the environment, which means that to manage energy transition, the women-energy-nexus, access to resources, decision-making, and control, is crucial (Batliwala and Reddy 2003; Del Boca et al. 2020; Nadeem et al. 2020a).

5. Therefore, this work proposes to investigate the possible gender stereotypes and bias holding by the shareholders participating to these initiatives. The first set of demands directly asks the shareholders on the stereotypes they can have on women. But, in these organisations, a bias of social desirability is likely to appear to conform with the inclusive views promoting by the cooperative (Tan et al. 2021). Thus, to avoid distortions, the presence of gender bias, defined as *the prejudiced actions or thoughts based on the gender-based perception that women are not equal to men*[13], in the participation of shareholders has been also controlled. From a theoretical point of view, one issue of this study is to bring a critical approach to collective action, still studied mainly through the efficacy but not considering its political and social issues, as for example where inequalities can emerge (Cleaver and De Koning 2015; Standal, Talevi, and Westskog 2020). This study also proposes to bring the first quantitative approach regarding women and energy communities (N=5402) since, for the moment, the lack of Data on women is a crucial issue in this field (Clancy 2019). Then, the last purpose is to highlight public on the importance to frame energy under a gender lens (Mang-Benza 2021).

6.2. Theoretical background

6.2.1. Energy communities, as ambivalent organisation towards women

6. For years, the position of women has been largely unfavorable in the energy field. Women have been, for example, vastly underrepresented in fossil fuel energy, being 22% of the workforce. Even more flagrant, they are only a small minority to have an executive position in this field and are mainly

[13] https://eige.europa.eu/thesaurus/terms/1394

concentrate on administrative tasks[14]. If various justifications have been given, one of the main identified reasons is the weight of gender stereotypes (IRENA 2019). Energy is strongly related to the STEM field, which is considered gender inauthentic for women (Faulkner 2009). Indeed, first, energetic resources are limited. This means that fossil-fuel energy is a competitive environment, an attribute more related to male. Second, fossil-fuel energy appears oft opposed to the general well-being and the care for sustainability (McDonnell, Odziemkowska, and Pontikes 2021). Thus, men, stereotyping as more agentic and instrumental, are more likely to feel and be seen as more fitted to the fossil fuel energy field than women (McClean, Kim, and Martinez 2022; Prentice and Carranza 2002; Rudman and Glick 2001).

7. The importance of considering women in the energy transition is more and more stressed as a critical point(Carley and Konisky 2020; Olarinde and Okoeguale 2022; Paula Abreu Marques 2021). First, excluding a part of the population has an economical cost. Second, adopting renewable energy requires also changing the current behaviors of citizens, and on this, women at the core of energy consumption are the most concerned. Third, suppose the energy transition is also the way to bring more well-being to the population. In that case, women are the most likely to enjoy its benefits since they are the most touched by energy poverty and indoor pollution due to scarce materials to warm their houses(Clancy 2002). And energy communities are seens as interesting organizations to foster their presence.

8. Indeed, with the development of renewable energy technologies, based on small-scale and local installations, aiming to increase the global welfare, the idea that men becomes less suited to this new organized energy market has been developed (Williams and Luginaah 2022). Dealing with renewable energies appears more attractive for women, expressing more sensitivity to environmental issues (Nadeem et al. 2020b). Women are also defined by their communality, characterized by a concern for others, sociability, and emotional sensitivity (Allen, Lyons, and Stephens 2019; Bear and Woolley 2011). Women are also related to the idea of motherhood, and that they are more likely to care for the planet, engaging on sustainable issues to protect the next generation(Muhamad, Muhamad, and Komal 2021; Perkins 2012). Then, they should feel more suited to a community-based management based on egalitarian principles and social relations, as it is the case in energy communities (Lazoroska et al., 2021).

[14] https://www.iea.org/commentaries/gender-diversity-in-energy-what-we-know-and-what-we-dont-know

9. Consequently, a dichotomy appears in energy communities that remain, on one side, a technological issue but, on the other side, deal with polycentric and democratic governance and renewable energy. For example, if cooperative management is seen as most fitted for women, recent works show that it is valid only when their object relates to feminine issues. When dealing with a male domain as sport or energy, men are still overrepresented in cooperative organizations (Boje, Hermansen, and Møberg 2019; Kosakowska-Berezecka, Pawlicka, and Kalinowska-Żeleźnik 2012). Some recent studies show also that explicit gender stereotypes are present in energy communities. In Lapniewska(2019), male shareholders endorse strong stereotypes regarding the women's presence in these organizations, characterizing energy communities as a "man's world" (Łapniewska 2019). The risk is thus that somehow energy communities can reproduce the societal expectations regarding the fact that energy, even endorsing collaborative and inclusive values, remains a male place. This ambivalence which appears in these organizations deserves to be questioned under the gender lens, to identify if the challenge of gender energy nexus, characterized by engendering energy and the challenge of empowering women through energy could be overcome by energy communities (Batliwala and Reddy 2003).

6.2.2. Assessing the presence of gender stereotypes

10. The presence of gender stereotypes can be evaluated by the explicit opinions of shareholders regarding the place of women in these initiatives (Smyth and Nosek 2015). On energy, the explicit gender stereotypes can deal with the skills or the presumed interest of women on this issue. Indeed, it is likely that participants could vehiculate gendered ideas on the place of women in energy world. For example, the idea that women have less interest than men for energy issues is largely diffused in the society even if largely unfounded since women are those managing the most this issue at home(Tjørring 2016). Then, the fact that energy is a STEM field could lead to think that women could lack of competences to participate to these initiatives, even if as said before, the participation do not require specific skills (Łapniewska 2019). Moreover, since energy has mostly been framed as gender neutral (Allwood 2020; Clancy 2019), participants could also lack of gender awareness regarding the difficulties for women to join energy field, especially concerning the fact that energy has been mostly considered as a male issue (Dancy et al. 2020).

11. In the case of energy communities, the explicit gender stereotypes could be even more complex to identify. Indeed, energy communities are explicitly declaring to care for social issues and inclusivity. For example, Rescoop has created a gender group to help to better understand the women issues in these organizations (Rescoop 2020). Therefore, it is likely that the shareholders could have a bias of

social desirability to fit with the expectations of their organisation. In this case, the risk is that the shareholders undermine their self-assessment regarding their gendered views to fit with the expectations of their organisations (Tan et al. 2021). Because of this, the real endorsement of gender stereotypes won't be assessing by the measure of the explicit gender stereotypes, remaining low. The presence of gender stereotypes will be more insidious, subtilty influencing men's and women's behaviors, through substantial gender bias. In this case, the *beliefs about status characteristics get translated into performance expectations, which in turn, shape the behaviors of individuals in a group"* (Berger et al. 1977; Berger and Fişek 2006; Webster, M., Jr and Foschi, M. 1988).

12. Therefore, comparing the level of gender stereotypes with the presence or not of gender bias allow thus to give a better picture of the possible differences between men and women in these organisations. In this case, gender stereotypes will produce indirectly differences between men and women in performance, gender bias, such as lower self-concept (Kinch 1963) and/or self-efficacy (Bandura 1977). More precisely, a difference can appear regarding the self-concept of participants with men will tend to valorize their qualities (attribute and role) as for example overvaluating their competencies compared to women and somehow their legitimacy to participate to these initiatives. A gender bias could be also observed in the way where people will benefit from their participation to an energy community, with a greatest self-efficacy, defined as "*the 'person's belief in their ability to succeed in a particular situation*" for men. As example, at a time when the energy transition will provide numerous jobs (Clancy et al. 2020), men could be more likely to increase their self-efficacy through their involvement in their organisation in terms of empowerment and working perspectives.

6.2.3. Research questions and hypothesis

13. Although, gender stereotypes could be an essential issue in the underrepresentation of women in these initiatives, as already identified in the traditional energy market (Baruah 2017; IRENA 2019), for the moment, their potential presence in energy communities have not been assessed by these organizations(Hanke, Guyet, and Feenstra 2021). Policy either at the cooperative or public level has mostly adopt a gender-blind view (Rescoop 2020). Therefore, to assess if energy communities could really overcome the traditional view on women and energy, this chapter answers to the following research questions:

1. Are negative gender stereotypes about women and energy present in energy communities?

2. Do we observe gender bias in the shareholders 'participation?

14. Since, as said before, these organisations aim to be gender-inclusive, a low level of gender stereotypes endorsement is expecting. But, since people are in theory likely to care for social values but nothing has been really done to foster the women inclusion, a low level of gender stereotypes awareness is also waiting on this issue. At the same time, considering the previous studies describing the women representation in these organisations and the current literature on STEM, gender biases are anticipating (Fraune 2015; Łapniewska 2019). It is also likely that the endorsement and the awareness of gender stereotypes and gender bias depends on socioeconomic dimensions. For example, if gender is an evident dimension since it is likely that women could undermine their competencies, this effect could intersect with other variables (Terriquez, Brenes, and Lopez 2018). For example, it is probable that in some age categories, for example, for the oldest participants, growing up at a time when STEM was more gendered, the level of gender stereotypes and bias are highest (DeArmond et al. 2006). Occupation or income is also relevant since, for example, women having the highest social positions or income could be less likely to score high on these dimensions, having already dealt with stereotypes to reach their social positions (Conway and Vartanian 2000). The field of study is also likely to play a role, especially among those studying STEM and energy. Indeed, since this field is mainly considered a male domain, people evolving in it have likely integrated these stereotypes and diffused them in the cooperative.

15. Finally, another aim of this study is to identify if geographical context can play on the level of gender stereotypes and bias through a comparison between two case studies has been chosen: Ecopower in Belgium and ènostra. These two case studies present substantial differences in women's participation: 20% for Ecopower and 40% for ènostra, which is quite unexpecting since Italy is below the European average for the representation of women in STEM and the gender index (EIGE 2020). One explanation could be that, gender stereotypes and bias would be less present in the Italian cooperative, since in this country energy communities are still considered an alternative and thus more feminine. So, I ask also:

3. Are gender stereotypes and bias correlated to the women's presence in these cooperatives?

6.3. Methodology

16. As dependent variables, the endorsement of gender stereotypes by the shareholders of both cooperatives has been used, based on a 3-Likert scale, going from 1 (not important at all or not important), 2 (Neutral) to 3 (important or very important). These demands regard first the agreement on the general stereotypes regarding gender roles, using in the European Social Survey*: A woman*

should be disposed to reduce her working time for the well-being of the family, and *Men should take on the same responsibilities as women towards caring for the home and children*. Then, two demands are more focused on endorsing gender stereotypes regarding the skills: *Women have less technical skills than men in energy issues* and interests: *Women don't care much about energy issues*. Another issue regards the awareness of gender stereotypes; indeed, it is crucial to see if shareholders are conscious that investing in a male domain for women could be difficult. To do, it has been asking: *I think many women are held back from investing in an energy co-op because they feel that energy is socially viewed as a men's business*.

17. However, it is also possible that gender stereotypes are not always verbally assessed by shareholders but are still present. Regarding gender bias, it has been first looking to the self-efficacy of the shareholders regarding their capacity to understand technical issues through the creation of an index: understand renewable energy, based on a 5-Likert scale, from 1 (Totally disagree) to 5 (Totally agree), using the following demands: *Do you agree with the fact to understand photovoltaic technologies? Do you agree with the fact that to understand wind power technologies?* (Cronbach alpha: 0.87). Then a second demand assesses the participants' self-concept regarding their place in the energy field: *since I joined the cooperative, I think I could have done work in the energy sector.*

18. As an independent variable, gender, coded as a dichotomous variable: 0: man, 1: woman, is used. Then, the level of study, a categorical variable divided into three categories: high diploma or below, diploma in STEM or humanities is also a variable of interest. For the demand: understand renewable energy, a category has been added to distinguish between those having studied energy in STEM or not. It is expected that those having the highest level of study are the most aware of gender discrimination and less likely to diffuse them. Age is coded as an interval, every ten years going variable from 18 to 30 years to 70 years. Then income is coded as a dichotomial variable: having an income under or above the national median.

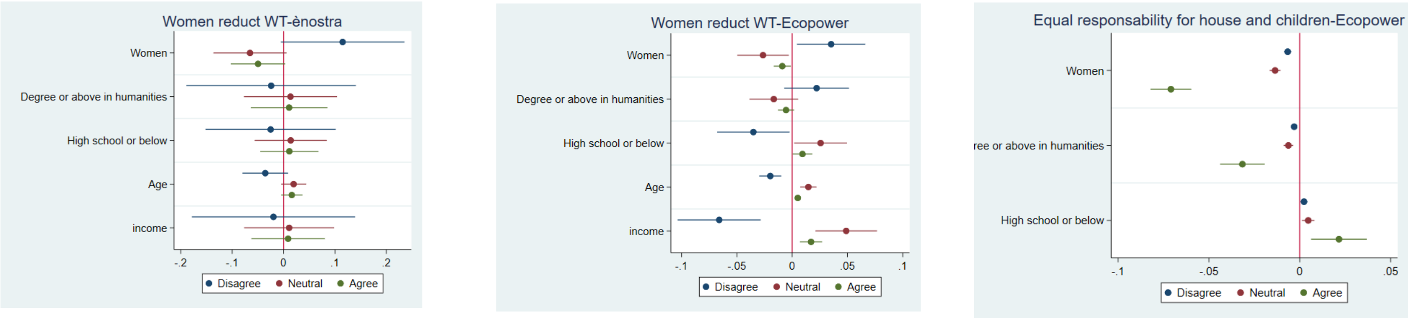
6.4. Resultats

Table 6.1: Difference between Ecopower and ènostra

	Ecopower		ènostra				
	M	SD	M	SD	T	P	Cohen's d
Explicit gender stereotypes							
Reduct working time	1.30	0.56	1.35	0.63	-1.24	0.22	0.04
Equal repartition	2.80	0.48	2.92	0.31	-4.39	**0.00**	0.11
Interest	1.87	0.72	1.36	0.62	11.78	**0.00**	0.32
Competences	1.85	0.71	1.38	0.63	11.01	**0.00**	0.30
Awareness	1.61	0.71	1.51	0.71	2.26	**0.02**	0.61
Understand RE	3.99	0.82	3.76	1.05	4.50	**0.00**	0.12
Aspiration	1.65	0.68	1.49	0.73	3.76	**0.00**	0.11

19. The first part of the results concerns the explicit gender stereotypes present in these initiatives. Looking to the first demand regarding the fact that women should have to reduce their working time to respond to the family needs, in both cooperatives, the same trend is observed with 74% of the shareholders disagreeing with this assumption. Women are more likely to disagree compared to men. Income is significant only for Ecopower with people having an income under the median much more likely to disagree with this assumption. For the second demand concerning the repartition of the domestic tasks (children and household), the shareholders are very likely to agree with a fair repartition between genders, even if the ènostra shareholders score slightly better: 2.92 on 3 and 2.8 on 3 for those of Ecopower. Moreover, if for ènostra, no difference has been observed across socio economic variables, it is not the case for Ecopower where women are much more likely to agree on this issue compared to male. It is also the case for people having a degree in humanities compared to those having a degree in STEM or an high diplom or below, maybe more aware of women issues. Then, the weight of gender roles: reduce its working time is more present for those having the lowest income, showing the importance of intersectionality in analysing women's inclusion in these initiatives.

Graph 6.1: Average predictive margins-gender roles stereotypes



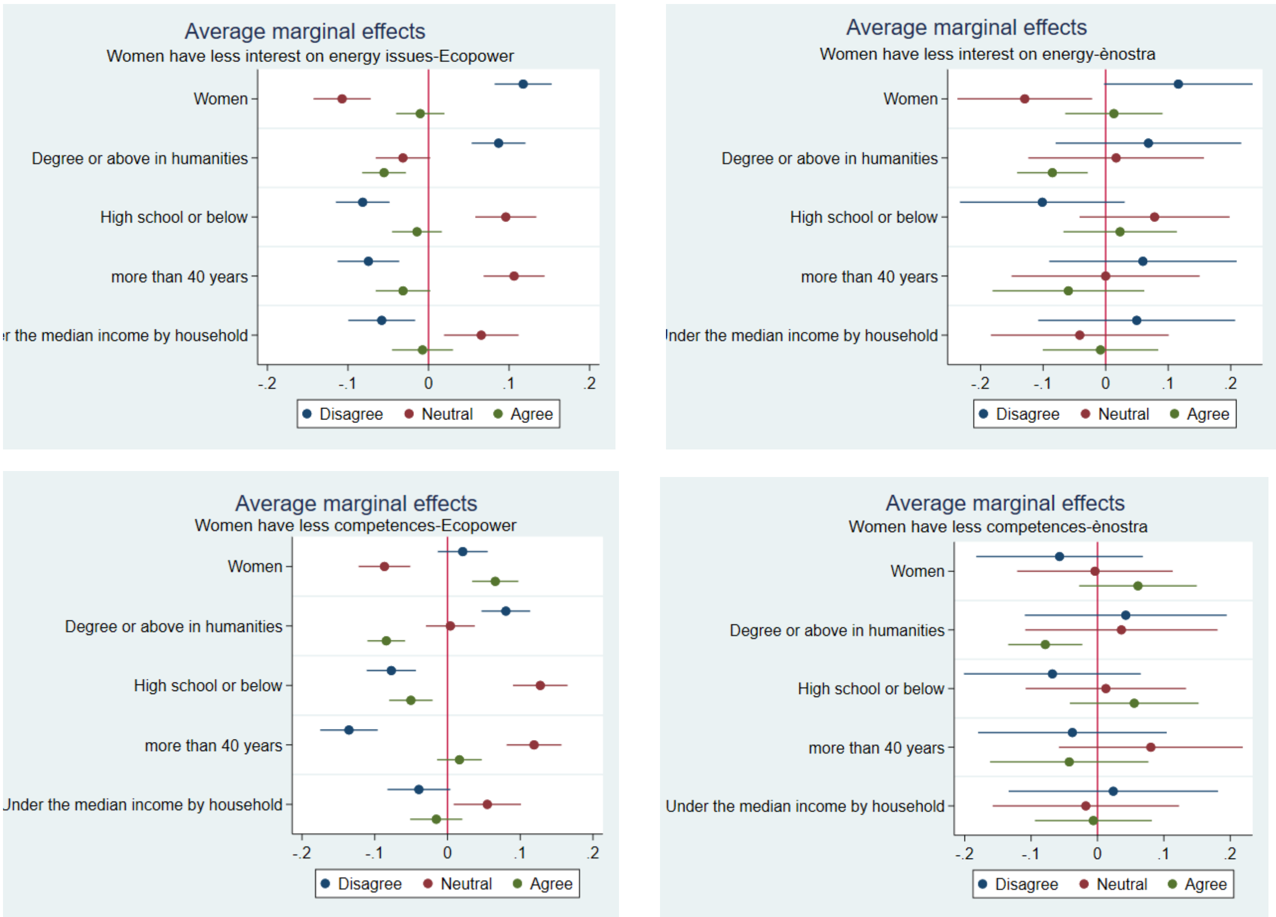
20. The second set of demands looks more precisely to the explicit gender stereotypes relative directly to energy issues on two levels: skills and interests. Contrary to the explicit gender stereotypes on gender roles, in this case, the stereotypes of women and energy are much more likely to be endorsed by the participants. As seen on **Table 6.1**, the shareholders' scores are highest compared to those expressed for the stereotypes on the gender roles. Moreover, unexpecting, a large majority of the shareholders of Ecopower do not disagree with the current assumption on women and energy. The shareholders of ènostra are 70.67% to disagree with the fact that women lack interest for energy whereas, for the Ecopower shareholders, they are only 35.30%. Regarding the second demand assessing that woman can lack interest in energy issues, the predictive margins show that the answer pattern is similar to the precedent issue. For example, 34.01% of the Ecopower shareholders disagree with while the are 70,17% by ènostra.

21. Then the other variables show a different pattern in both cooperatives, since again the gender stereotypes on women and energy are less dependent from the socio-economics category for ènostra, showing somehow an homogeneity across participants. Regarding the explicit stereotypes on the women ‘interest for energy issues, in both cooperatives, even if significant only for Ecopower, women in both cooperatives are more likely than men to express their disagreement on their lack of interest on energy issues. These latter generally adopt a neutral opinion. This is even truer for Ecopower with 43% of women disagreeing on this issue against 30% for males. In the case of ènostra, 79% of women disagree on it for 68% of males. Looking at the competencies, the interesting point is to see that in this case, women are more likely to frame the problem of their underrepresentation as a lack of competencies more likely to agree that they lack of competences rather than interest while for men both stereotypes are endorsing in the same way.

22. Then, the control variables are not significant for ènostra while they are for Ecopower. For Ecopower, people having a degree in humanities endorse less the stereotypes compared to those having an high diplom or below or a degree in STEM while it is the contrary for those having an income under the

median compared to those having an income above the median and having more than 40 years compared to those having less of 40 years. Moreover, an interaction effect is identified with women having a degree in STEM less likely to disagree with this assumption.

Graph 6.2: Average predictive margins-gender and energy stereotypes

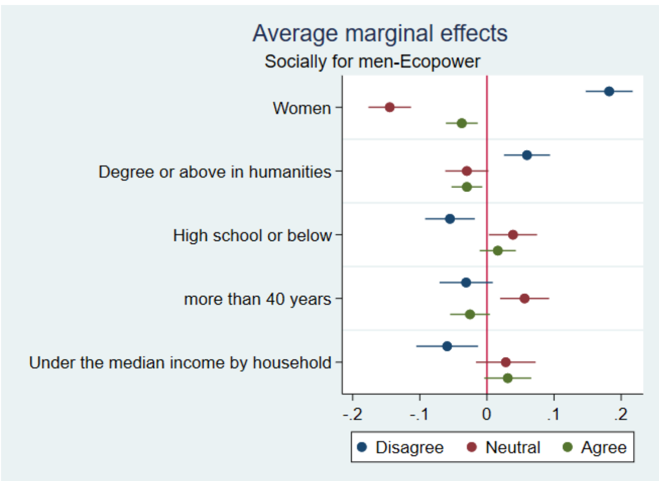


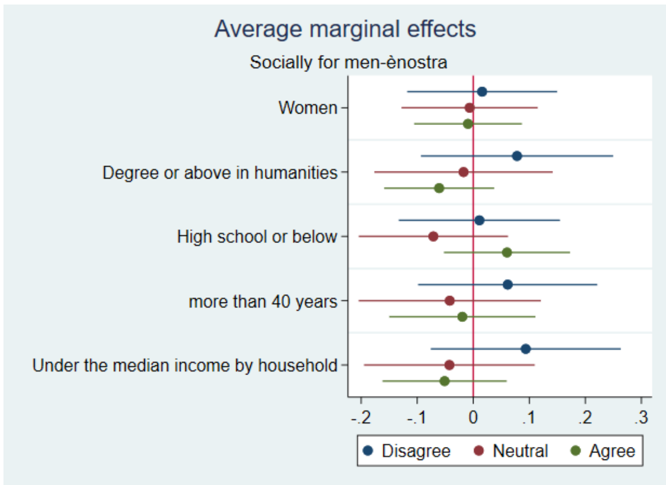
23. On one side, it could be judged positively that shareholders disagree with the previous demands regarding the lack of interest and the competencies of women and energy, showing that they find that this general thinking is speculative. On the other side, it is also important that the shareholders are conscious of the social barriers that women must overcome to take part in this field, allowing them to consider this issue and act on it. Therefore, a last point regarding the explicit gender stereotypes is to look at gender awareness in the energy communities. Indeed, the fact that males design energy issues are well known, and, in both cooperatives, women could have difficulties to invest in these organizations seen as a male domain. But only one shareholder out of two to disagree with this assumption (53% for Ecopower and 59% for ènostra). Surprisingly, the shareholders instead prefer staying neutral (32% for Ecopower and 27% for ènostra) than agreeing (13% either for

Ecopower or ènostra) with this assumption, demonstrating somehow that this issue remains few considered.

24. Looking to the socio-economics characteristics of the participants, the variables are significant for Ecopower but not for ènostra, showing that the views of *ènostra* shareholders are quite homogene. Unexpecting in Ecopower, women are less aware of this issue and most likely to disagree compared to men with the fact that energy are socially for men. The predictive margins show that 67% of women (62% for ènostra) disagree on this issue against 49% for males, indicating that those having managed to overcome stereotypes and join the cooperative do not consider the possible barriers for the others. People having a degree in humanities are more likely to disagree with this assumption compared to those having a degree in STEM or an high school diplom or below. Then people being above 40 years old are also more likely to agree with gender stereotypes.

Graph 6.3: Average predictive margins-gender and awareness

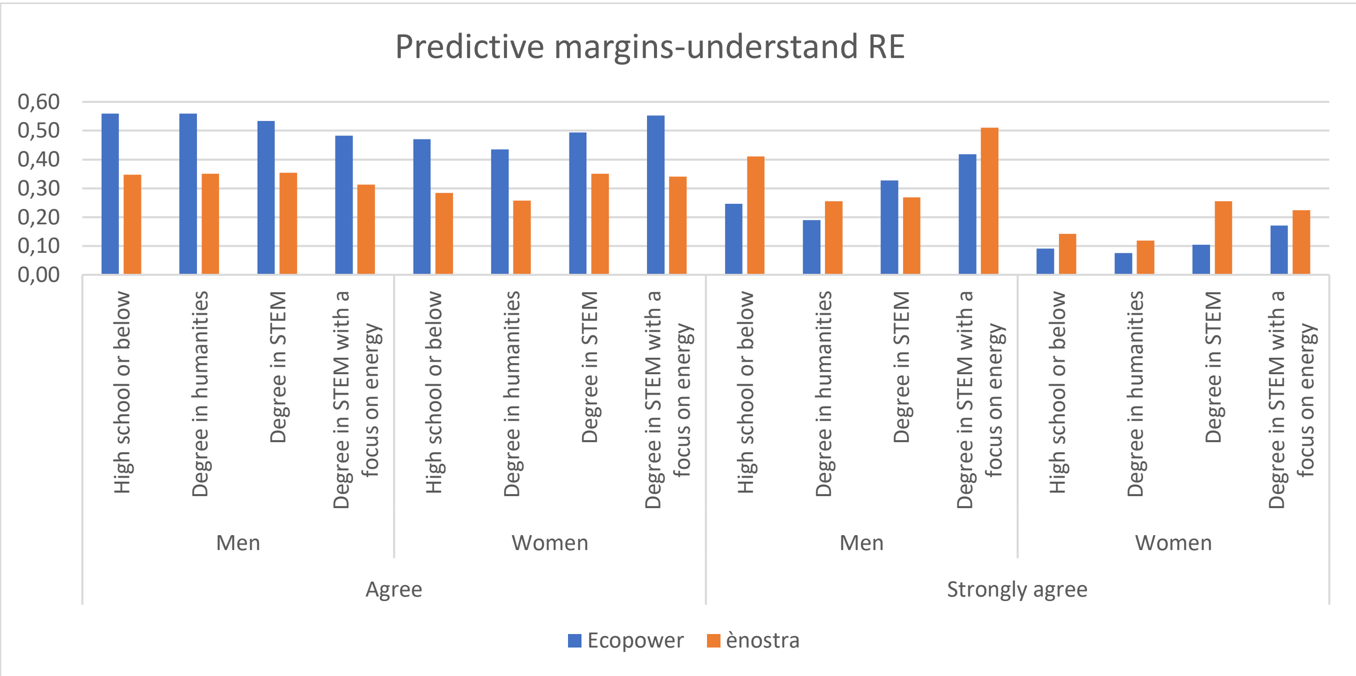




25. Then the last issue is to identify the possible gender bias present in the cooperatives. As said before, it is likely that a social desirability undermines the effective level of stereotypes in these organisations and could led to think that they are quite gender friendly. And indeed, if ènostra was more likely to have a lowest explicite gender stereotype, in the case of gender bias, women appear to feel less suited to these initiatives with a more pronounced trend to have lowest self-assessment regarding their skills. Indeed, women are 60% by Ecopower to agree or strongly agree with the fact to understand how works renewable energy technologies while it is only the case for 48% of women for ènostra. Significant differences in the predictive margins appear also between men and women regarding the fact to understand how works the functioning of renewable energy technologies. Especially, the main difference leads to the answer's intensity. In both cooperatives, men are more likely than women to strongly agree with understanding renewable energy.

26. Looking more precisely at the field and level of study, one explanation could be that women are 38.75% to have study energy when having a STEM degree while it is the case for 53.85% of the male. However, even considering this dimension, the predictive margins show that the difference is still persistent: 16.99% strongly agree with understanding renewable energies. For males, the predictive margin is 41.06% for those with a STEM degree. Therefore, women tend to have the lowest self-assessment than males even when having studied STEM, meaning that the self-capacity of the shareholders is strongly gender-biased, either with men overrating their capacity or women undermining themselves. This is especially true by ènostra when women in STEM and having studied energy undermine their competences always more likely to agree or strongly disagree than women belonging to Ecopower.

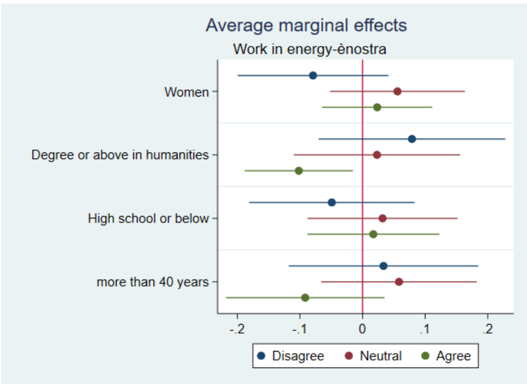
Graph 6.4: Predictive Margins-Understand renewable energy



27. Regarding another dimension where a gender bias could be observed, the self-concept, a critical dimension is to see a strong gender bias could be observed to develop aspirations for the energy field. For example, many jobs will be created shortly, and energy communities could be a way to bring women into this market where they are still underrepresented. Even if not significant for ènostra, the variable gender has an opposed effect between both cooperatives. In ènostra, women tend to be less likely to disagree on this issue than men (59% against 68%) and more likely to agree

(15% against 12%) while it is the contrary for Ecopower (respectively 44% against 57% and 5% against 13%). For example, men are two times more likely by Ecopower than ènostra. People with the lowest diploma are also those more likely to develop aspirations after having participated to the cooperative while it is the contrary for those having a degree in humanities. Moreover, looking closely to the variable age, the predictive margins show that one out of five from the youngest age category:18-30 years, agree with this assumption. This result could be explained by the fact that after thirty years generally, people have already chosen their career and their field. For the youngest, energy communities can act as a catalysator for boosting aspirations. Nevertheless, the bad point is that this is much more valid for men. Moreover, few young people participate to the cooperative. Especially, in this study, the number of cases is low (N=79) and would deserve further investigations to consolidate our results.

Graph 6.5: Predictive Margins-Work in energy



6.5. Discussion

28. The lack of participation of women could be seen as a free choice result, not considering the complexity of social barriers that could lead energy communities to be exclusive as shown by the participant's awareness on this issue (Agarwal 2001). Moreover, unfounded ideas as a lack of interest or competences could be endorsed and diffuse and thus justify the women's exclusion from these initiatives, leading to a self-fulfilling prophecy with women becoming effectively less interested in or devaluating themselves. For example, women, the results show that despite that they are at the core of energy uses and thus are the most concerned on energy issues compared to men, the general idea that they lack interest is still largely endorsed while they are also more likely to agree that they lack competences on energy to participate even if these initiatives do not require specific skills.

29. Then, the context in which the cooperative is anchored is essential, with ènostra more likely to build a comfortable environment for their female shareholders than Ecopower, through for example a low level of gender stereotypes endorsement. In Ecopower, only a minority disagree with gender stereotypes relatives to energy issues, while they rather have a neutral opinion, as if this issue does not exist and still one out of five agree with. As evocated before, this can be clarified by the fact that ènostra is largely seen as an alternative in Italy, where energy communities are still few developed(Candelise and Ruggieri 2020). Energy communities are more selective and gather people who are already intensely caring for social and environmental issues. At the same time, in the case of Ecopower, giving a return on equity and more known, participants are more representative of the society. Moreover, in this case, the cooperative is also considered a business entity and thus more likely to be considered a male domain, more agentic and breadwinning, vehiculating explicit gender stereotypes on women and energy.

30. However, if this result tends to be positive for the cooperative ènostra yet, showing a lowest level of discriminations regarding women, it is essential to consider that things could quickly change. Indeed, the weight of gender stereotypes is significant in Italy. For example, in Italy, the rate of women having a degree graduate in STEM is below the European median. Women undergraduates are 14% in IT, 26% in engineering, and 31% in physics[15]. It could be expected that with the development of these initiatives, explicit gender stereotypes could increase in the future. Furthermore, even if the explicit gender stereotypes appear lower in ènostra, it remains that gender biases are present. Especially, women in ènostra are those scoring less regarding the self-assessment of their capacity to understand renewable issues, and this even when having studied energy and are those the most likely to agree that they lack competences to join these initiatives. Even though the Italian energy communities present more inclusive views, there is still strongly impacted by society's weight that STEM field are more suited to males.

31. Then, the second research question looked to understand if a correlation could be observed between the level of gender stereotypes and the presence of women in these initiatives. It has been expected that ènostra having one of the highest participation rates of women compared to other energy communities, would be characterized as a gender-friendly environment. On this, it is difficult to answer since, as said before, on one side, this is true since people are much more likely to agree with explicit gender stereotypes, but on the other, gender-bias are more pronounced by ènostra. Another

[15] https://www.almalaurea.it/universita/indagini/rapporti-almalaurea-2021

reason that could explain the strong participation of women in these initiatives is the President of ènostra: Sara Capuzzo, elected in 2019. Since its nomination, the figures show that the women have been more numerous than men to join the cooperative: 60% against 40% for males. Moreover, an interesting answer is that six women out of ten declare that a woman president has been a reason for their adhesion to the cooperative. Significantly, the presence of role models could be significant in fostering the presence of women in these organizations, leading to giving a social image of this organization more fitted to women through the development of a sense of belonging and interest in participation (Kosakowska-Berezecka, Pawlicka, and Kalinowska-Żeleźnik 2012)

32. In this, having (counterstereotypical) role models to foster women's participation comes as a possible answer, showing that energy is also a women's domain and transmits an encouraging message to women who would join these organizations. Role models can be defined as people who show others: *(1) how to perform a skill and achieve a goal – behavior, (2) that a goal is attainable – representation of the possible, (3) that a goal is desirable – inspiration* (Morgenroth, Ryan, and Peters 2015). This confirms the idea that stereotypes could change and are malleable(DeArmond et al. 2006; Nillesen et al. 2021). For example, if having a woman president play already on the participation rate, it would also be interesting to identify until some years if the presence of a woman would have also impacted their self-concept and self-identity. Especially, regarding aspirations, contrary to Ecopower, women are more likely to declare that since they participate to the cooperative, they realize that they could work on energetic market. Therefore, when women are particularly underrepresented in the executive committee of these initiatives, considering gender quotas in the management of the cooperative could also be a way to bring more women into these initiatives. A clear need appears to better frame the underrepresentation of women in these initiatives and question shareholders' preconceived ideas, leading them to position them against gender stereotypes.

6.6. Conclusions

33. Gender stereotypes are complex mechanisms since they lead men and women to interiorize social roles. Especially gender stereotypes are strongly prescriptive, assigning both genders specific expectations regarding how they should behave and their "right place" in society. In many cases, gender stereotypes have strongly shaped the world, leading women to be excluded mainly from some sectors related to power. despite their inclusive views, emphasizing their capacity to bring each citizen in energy transition. This is precisely what is observed in the case of is the case of collective resources management and energy resource, where women suffering from strong stereotypes are

few represented and largely discriminated against (IRENA 2019). Therefore, this study aimed to assess if, this time, with energy communities and their inclusive view, things could be different and gender stereotypes overcome. The results show that also in the case of energy communities, there is thus a solid need to frame energy issues under a gender lens in energy communities.

34. For this, it is not likely that the shareholders themselves, with limited awareness of this issue, could put the place of women as a central issue. The executive board of the organizations has of course a role to play raising awareness on this issue. And it is what is currently done by Ecopower, following partly the results I have done in their organisations. They have built a gender plan where four main axes have been developed, as described follow. First, awareness should be raised and the social barriers that can meet women listed. There is thus a call to deconstruct the social reality of energy as an area reserved for males with for example the diffusion of storytelling regarding women cooperators, and considering the possible difficulties for women to join especially when having children and creating a board to focus and follow women inclusion in the cooperative.

Table 6.2: Rescoop Gender plan-2022

Internal and general operation	Communication & image	Member actions	Networking/partners
Baseline measurements, numbers collection & format for measurement	Storytelling: women cooperators, employees ... (Gender-diverse representation of Ecopower to the outside world)	Events matched to availability/needs target groups	Questioning other coops around the same theme
Identify thresholds in processes and structures	Establish gender-neutral language policy	Survey of members	Creating partnerships
Establish gender policies (HR, representation, communication ...)	Creating image database	Composing a sounding board group	

Source: Camille Meeus-Ecopower

35. However, it is important to precise that Ecopower is already a big organization, allowing them to find necessary resources to develop this kind of actions. Moreover again, to fight against the traditional representation of women and push for their inclusion, it is also evident that at a time when energy communities already have many challenges, asking them to deal also with social issues will require some support from the institutions (Martiskainen, Heiskanen, and Speciale 2018).This could come for example from public policies proposing formations for the executive committee and gathering best practices.

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6.8. Annexe

Table 6.2: Ordered logit-Women should reduce their working time

	Odds ratio	SE	95% CI		P
			LL	UL	
Ecopower					
Gender (Women)					
Men	-0.22	0.09	-0.40	-0.04	0.02
Field of study (Degree or above in STEM)					
Degree or above in humanities	-0.12	0.08	-0.28	0.05	0.16
High school diplom or below	0.21	0.09	0.04	0.37	0.01
Age (under 40 years old)					
Above 40 years old	0.17	0.10	-0.03	0.36	0.10
Income (under the median)					
Above the median	0.41	0.10	0.20	0.61	0.00
Ènostra					
Gender (Women)					
Men	-0.61	0.34	-1.29	0.06	0.07
Field of study (Degree or above in STEM)					
Degree or above in humanities	0.19	0.42	-0.64	1.02	0.65
High school diplom or below	0.13	0.33	-0.53	0.78	0.71
Age (under 40 years old)					
Above 40 years old	0.68	0.41	-0.12	1.48	0.10
Income (under the median)					
Above the median	0.06	0.41	-0.74	0.86	0.88

Table 6.3: Ordered Logit-Equal repartition

	Odds ratio	SE	95% CI		P
			LL	UL	
Ecopower					
Gender (Men)					
Women	0.51	0.11	0.30	0.72	0.00
Field of study (Degree or above in STEM)					
Degree or above in humanities	0.35	0.10	0.15	0.54	0.00
High school diplom or below	-0.11	0.09	-0.29	0.07	0.22
Ènostra					
Gender (Men)					
Women	0.69	0.63	-0.54	1.92	0.27
Field of study (Degree or above in STEM)					
Degree or above in humanities	-0.81	0.71	-2.19	0.58	0.25
High school diplom or below	-0.24	0.56	-1.35	0.86	0.67

Table 6.4: Gologit2-Women have less interest in energy

	Odds ratio	SE	95% CI LL	95% CI UL	P
Ecopower-Disagree					
Intercept	0.43	0.21	0.02	0.84	0.04
Gender (Men)					
Women	-0.52	0.08	-0.68	-0.37	0.00
Field of study (Degree or above in STEM)					
Degree or above in humanities	-0.38	0.07	-0.53	-0.24	0.00
High school diplom or below	0.41	0.09	0.24	0.58	0.00
Age (under 40 years old)					
Above 40 years old	0.34	0.09	0.17	0.51	0.00
Income (under the median)					
Above the median	0.28	0.11	0.07	0.49	0.01
Ecopower-Neutral					
Intercept	-0.77	0.25	-1.26	-0.29	0.00
Gender (Men)					
Women	-0.06	0.10	-0.25	0.13	0.51
Field of study (Degree or above in STEM)					
Degree or above in humanities	-0.35	0.09	-0.53	-0.17	0.00
High school diplom or below	-0.08	0.09	-0.27	0.10	0.37
Age (under 40 years old)					
Above 40 years old	-0.19	0.10	-0.38	0.01	0.06
Income (under the median)					
Above the median	-0.05	0.12	-0.29	0.19	0.70
ènostra-Disagree					
Intercept	0.59	0.83	-1.04	2.22	0.48
Gender (Men)					
Women	-0.61	0.33	-1.26	0.03	0.06
Field of study (Degree or above in STEM)					
Degree or above in humanities	-0.41	0.47	-1.34	0.52	0.39
High school diplom or below	0.49	0.33	-0.16	1.14	0.14
Age (under 40 years old)					
Above 40 years old	-0.30	0.36	-1.01	0.41	0.41
Income (under the median)					
Above the median	-0.27	0.46	-1.17	0.63	0.56
ènostra-Neutral					
Intercept	-1.21	1.10	-3.37	0.95	0.27
Gender (Men)					
Women	0.19	0.60	-0.98	1.37	0.75
Field of study (Degree or above in STEM)					
Degree or above in humanities	-15.20	0.62	-16.42	-13.98	0.00
High school diplom or below	0.27	0.52	-0.74	1.28	0.60
Age (under 40 years old)					
Above 40 years old	-0.75	0.72	-2.16	0.66	0.30
Income (under the median)					

Above the median	-0.13	0.78	-1.65	1.39	0.87

Table 6.5: Gologit2-Women have less competences

	Odds ratio	SE	95% CI LL	95% CI UL	P
Ecopower-Disagree					
Intercept	-0.50	0.21	-0.90	-0.09	**0.02**
Gender (Men)					
Women	-0.09	0.08	-0.25	0.06	0.23
Field of study (Degree or above in STEM)					
Degree or above in humanities	-0.35	0.07	-0.49	-0.20	**0.00**
High school diplom or below	0.37	0.09	0.20	0.54	**0.00**
Age (under 40 years old)					
Above 40 years old	0.58	0.08	0.42	0.75	**0.00**
Income (under the median)					
Above the median	0.18	0.11	-0.03	0.39	0.09
Ecopower-Neutral					
Intercept	-1.78	0.26	-2.29	-1.27	**0.00**
Gender (Men)					
Women	0.39	0.09	0.22	0.57	**0.00**
Field of study (Degree or above in STEM)					
Degree or above in humanities	-0.56	0.09	-0.74	-0.38	**0.00**
High school diplom or below	-0.31	0.10	-0.50	-0.12	**0.00**
Age (under 40 years old)					
Above 40 years old	0.11	0.11	-0.10	0.32	0.31
Income (under the median)					
Above the median	-0.10	0.12	-0.34	0.14	0.41
ènostra-Disagree					
Intercept	-1.65	0.85	-3.31	0.01	
Gender (Men)					
Women	0.28	0.32	-0.35	0.92	0.38
Field of study (Degree or above in STEM)					
Degree or above in humanities	-0.24	0.44	-1.10	0.63	0.59
High school diplom or below	0.33	0.33	-0.31	0.97	0.32
Age (under 40 years old)					
Above 40 years old	0.19	0.38	-0.55	0.94	0.61
Income (under the median)					
Above the median	-0.12	0.44	-0.98	0.74	0.78
ènostra-Neutral					
Intercept	-2.60	1.10	-4.75	-0.45	0.02
Gender (Men)					
Women	0.81	0.60	-0.36	1.98	0.18
Field of study (Degree or above in STEM)					
Degree or above in humanities	-16.41	0.63	-17.65	-15.17	**0.00**
High school diplom or below	0.61	0.51	-0.38	1.60	0.23

Age (under 40 years old)					
Above 40 years old	-0.55	0.72	-1.96	0.87	0.45
Income (under the median)					
Above the median	-0.09	0.78	-1.62	1.43	0.90

Table 6.6: Gologit2-Socially for men

	Odds ratio	SE	95% CI		P
			LL	UL	
Ecopower-Disagree					
Intercept	-0.09	0.08	-0.25	0.06	0.24
Gender (Men)					
Women	-0.75	0.07	-0.89	-0.60	0.00
Field of study (Degree or above in STEM)					
Degree or above in humanities	-0.24	0.07	-0.38	-0.11	0.00
High school diplom or below	0.28	0.07	0.13	0.42	0.00
Age (under 40 years old)					
Above 40 years old	0.15	0.08	-0.01	0.31	0.07
Ecopower-Neutral					
Intercept	-1.61	0.11	-1.83	-1.40	0.00
Gender (Men)	-0.27	0.11	-0.49	-0.05	0.02
Women					
Field of study (Degree or above in STEM)					
Degree or above in humanities	-0.31	0.11	-0.53	-0.10	0.00
High school diplom or below	0.18	0.10	-0.01	0.38	0.07
Age (under 40 years old)					
Above 40 years old	-0.18	0.11	-0.41	0.04	0.11
ènostra-Disagree					
Intercept	-0.02	0.32	-0.65	0.62	0.95
Gender (Men)					
Women	-0.03	0.25	-0.52	0.46	0.91
Field of study (Degree or above in STEM)					
Degree or above in humanities	-0.49	0.35	-1.17	0.20	0.16
High school diplom or below	-0.15	0.28	-0.69	0.39	0.59
Age (under 40 years old)					
Above 40 years old	-0.34	0.31	-0.96	0.27	0.27
ènostra-Neutral					
Intercept	-1.82	0.53	-2.86	-0.79	0.00
Gender (Men)					
Women	-0.22	0.38	-0.97	0.52	0.56
Field of study (Degree or above in STEM)					
Degree or above in humanities	-0.87	0.65	-2.14	0.41	0.18
High school diplom or below	0.33	0.39	-0.44	1.10	0.40
Age (under 40 years old)					
Above 40 years old	-0.03	0.52	-1.05	0.99	0.95

Chapter 7: Paper 5: Women in energy communities: an intersectional analysis of their participation

Abstract

The recent development of energy communities as a key actor in a new energy market has been strongly attached to the perspective of energy democracy and justice since in theory, each citizen could become a shareholder of renewable energy installations, managed collectively as a new common. This is why energy communities have been seen as a way to include all citizens in energetic transition, especially those who are generally excluded, such as women. Women represent the largest group of the 82 million of people suffering from energy poverty in the European Union, i.e., dying because of unhealthy combustibles. However, if an intuitive link has been made between energy communities and the fairness of energetic transition, few strategies have been implemented by energy communities to help underrepresented groups like women join these initiatives.

As a consequence, this lack of emphasis on the recognitional aspect of energy justice could lead to producing and reproducing new gender inequalities in the energy world. For the moment, the presence of women and more generally underrepresented groups in energy communities begin to be the subject of academic research. One of the main problems remains the lack of data to address this issue. This work aims to fill this gap by adopting an intersectional perspective on the cooperative Ecopower in Belgium (N=5114). The objective is to highlight the need to consider the multidimensionality and complexity of gender inequalities and be able to drive concrete actions to foster women's participation in the energy world.

7.1. Introduction: The challenge of inclusivity for energy communities

1. This last chapter comes to underline a current challenge for energy communities regarding the inequalities which can appear in these organisations. As underlined by the Council of Europe, understand the intersectionality of inequalities, meaning the relationships between them, in collective action is a current priority to provide each European citizens with equal opportunities. More precisely, *intersectionality expresses the complex mix of factors in inequality, both focusing our attention on issues around race, gender, language proficiency, citizenship status, among others, but also on the context and structures that shape their incurring privilege and disadvantage*(Woods, Benschop, and Brink 2022). Questioning this dimension in energy communities focusing on gender since our previous work has shown that women was underrepresented and some discriminations could appear, allows us to provide a better picture of power relations into collective action and fill one gap in the literature by addressing again energy communities, collective actions, as a political and social projects where the aim should be to ensure a fully participation to all kind of citizens.

2. Indeed, while energy communities have already been successful in implanting an energy democracy by strongly focusing on equitable governance, what is still lacking is the emphasis on the recognitional aspect of the democratic process. Energy communities bring the intuitive idea of an energy citizen (Devine-Wright 2007), with equitable rights and responsibilities to shape energetic transition. However, the risk is to fall into the local trap (Purcell 2006; Taylor Aiken 2015), meaning to postulate that inclusivity will appear per se in these projects and 'to assume rather than demonstrate that community projects are more democratic or just' (Van Veelen 2018). Indeed, Ecopower, like all cooperatives belonging to Rescoop's network, subscribed to the principles of *equality, equity, and solidarity, and 'belief in the ethical values of honesty, openness, social responsibility and caring for others*'(Rescoop 2020). Despite this, no concrete action has been taken in this regard. Ecopower is not an isolated case. A recent study shows that the majority of European energy communities does not adopt any kind of actions to support underrepresented groups, such as women, in these organizations, and only one-third of them talked about this issue (Hanke, Guyet, and Feenstra 2021).

3. This lack of emphasis on the recognitional tenet of energy justice is a serious problem (Cleaver and De Koning 2015). Without the moral assumption that access should be equally granted to all citizens, the representativity and thus the strength of energy democracy could be largely undermined (Jenkins 2018b; Sovacool e Dworkin 2015b; Sovacool et al. 2017). Collective action are characterized by formal rules, as propriety rights, and informal rules, such as social norms that regulate peoples' inclusion (Ostrom 1992). These rules don't apply to women and men in the same way, especially in the energy field, that can be more discriminant for women (Agarwal 2001; Meier zu Selhausen 2016). For example, participating in an energy community requires financial resources and, on average, in the European Union women earn much less than men, around 20%, resulting in a gap of 560€ per month (EIGE 2020). Investing is also considered more as a male business and women are usually more risk-averse (Charness and Gneezy 2007). Joining a community and being actively involved in it requires time, which is scarce for women, mainly if mothers.

4. Relevant is also the fact that the energy field has been very discriminant, especially for women, as it is traditionally considered a male domain. To give a quick overview, in the fossil fuel energy sector women represent 6% of the technical staff and 1% of the top management (UN 2016). The situation is quite better in renewable energy sectors, where women represent on average 35% of the workforce but are still largely employed on "feminine" tasks, e.g., administrative function or marketing (Pearl-Martinez e Stephens 2016). Moreover, while energy communities are presented as

not requiring a specific knowledge, still they belong to a technological field, where women can feel less suited due to socialization. Females‘ graduate students in Science, Technology, Engineering and Mathematics (STEM) are less than 30% and only 19% in engineering (UNIDO 2014; Wang and Degol 2017). Moreover, energy has been considered as an expert domain where people have been largely disempowered on energetic issues, leading also to exclude 54 million people, mostly women, living currently in energy poverty in Europe (Clancy 2019; Martiskainen, Heiskanen, and Speciale 2018).

5. As shown before, energy communities produce internal and external forms of exclusion (Van Veelen 2018). This is why scholars have highlighted the risk that energy communities would lead towards an Athenian democracy belonging to *well-resourced, well-meaning middle-class men* (Johnson and Hall 2014), thus marginalizing a large part of the population, including women (Grossmann and Creamer 2017). Indeed, in some contexts renewable installations technologies led to a dramatic increase in inequalities. The risk is thus that, “*economic and technological change may result in new patterns of inequality, with a persistent risk of poverty coinciding with new forms of exclusion”*. This is why it is important to ask, at a moment in which energy communities are presented as an alternative model able to bring all people into energy transition: **is gender inequality produced and reproduced by energy communities?**

7.2. Towards an analysis of the intersectionality of gender inequalities in EC

7.2.1. An overview of the women’s participation in EC

6. In the energy world, and especially in energy communities, sex-disagreed data are still largely missing, showing that in a world dominated by numbers, what is not counted does not count (Clancy and Roehr 2003; Clancy, Feenstra, and Daskalova 2017). Joining an energy community has been mostly studied under the lens of the willingness to participate, where motivations have been underlining (Bauwens 2016), but with little consideration on the fact that social logic and constraints can undermine the potential and the capabilities of citizens to participate (Coy et al. 2021d). The focus on women’s participation in these organizations is anecdotic. The attention on participants’ heterogeneity put by scholars is more an accidental focus, aiming to describe rather than analyse gender inequalities. More generally, looking at women into collective action, the term gender has been used for the first time only in 2005 by Ostrom and it is generally not considered as a variable of interest when studying these initiatives (Łapniewska 2016; Ostrom 2005).

7. This is to fill this research gap that this survey, realized in collaboration with the project Horizon 2020 has been launched in March 2021. It collects the answers of 5387 shareholders of Ecopower, representing 17% of those who read the email message, of whom 5114 were exploitable. This study

gives an overview of shareholders' profiles in the cooperative (LaRose and Tsai 2014). The first important results regard gender representation across shareholders in these initiatives. As we can see, women are largely underrepresented in Ecopower. While men represent around 79.04% of shareholders, women are only 20.96%. This gender gap confirms previous results found in other countries, e.g., Germany where 80% of the 2000 energy communities' members are men (Yildiz et al. 2015).

8. Moreover, the problem of representation in these initiatives regards also other characteristics, such as family income, educational level, occupation, and age. For example, in Belgium, 37.6% of inhabitants have a tertiary education level while they represent 61.31% of cooperative participants. Furthermore, people over 50 represent 39.2% of the population but 61.67% of Ecopower's shareholders. High incomes are also underrepresented with the median of personal incomes in the cooperative situating between 3500€ and 4000€ per month. In contrast, people having a monthly personal income below 2000€ represents only 11.22% of shareholders, while those winning less than 1000€ per month, 0.95%. These first descriptive results show that to participate in collective action initiatives in the energy field, a specific profile is required, and de facto a large part of the population, in particular women is excluded but not only.

7.2.2. Towards an intersectional analysis of women 'decision to join the cooperative

9. Participating in the cooperative is mostly, but not only, a gender-related. This is why, as a multidimensional phenomenon, inequalities crossing energy communities Ecopower should be considered as a whole. Inequalities are complex and cannot be summarized to a binary approach, being a man or a woman. They intersect with factors as income level, marital status, and age. To understand women's barriers in their participation in energy communities, women have to be considered not as a unique entity but in their diversity. If some studies have already warned on the underrepresentation of women in energy communities, this analysis could be only meaningful by understanding how different social markers can marginalize or privilege some women compared to others.

10. But for the moment, this kind of approach is still strongly missing in the literature (Johnson et al. 2020; Søraa et al. 2020) since no study adopted an intersectional perspective to state how inequalities can overlap among them in energy communities and thus self-reinforce a cycle of privileges regarding economic, environmental, and social benefits (Lennon et al. 2020; Mundaca, Busch, and Schwer 2018). By consequence, the next section aims to analyse this previous descriptive

data, not considering women as a monolithic category but going deeper, using a quantitative approach with sex-disaggregated data, to study gender under the lens of intersectionality.

7.2.2.1. Joining the cooperative

11. When looking at who is joining the cooperative, the descriptive results showed that women are largely underrepresented. Here, we aim to analyse what can foster or undermine their participation. One important dimension is that, despite women are at the core of energetic use by being mostly responsible for reproductive work at home, they tend to have less power in decision-making than men regarding energy issues and thus joining an energy community (Clancy 2002; Łapniewska 2019; Winther et al. 2020). Indeed, if on average the probability for people to be in a couple when joining the cooperative is 80%, large variations can be found among social groups, meaning that the proportion to be the family representant in these organizations is largely conditioned by gender.

12. When answering the question ***"In your family who chooses to join the cooperative?"*** men are much more likely to take this decision when they are in a couple. Indeed, for a male, the odds of being in a couple and joining the cooperative are 3.07 times larger than the odds for a female being in a couple. When comparing singles, women are more likely to join the cooperative than men. This means that one first barrier for women to join the cooperative is their marital status. In most cases, men are more likely to become the unique shareholder representing the whole family. This has a strong consequence since men are going to be in the household those strongly implicated in energy issues, like participating in formations or assembly, and voting.

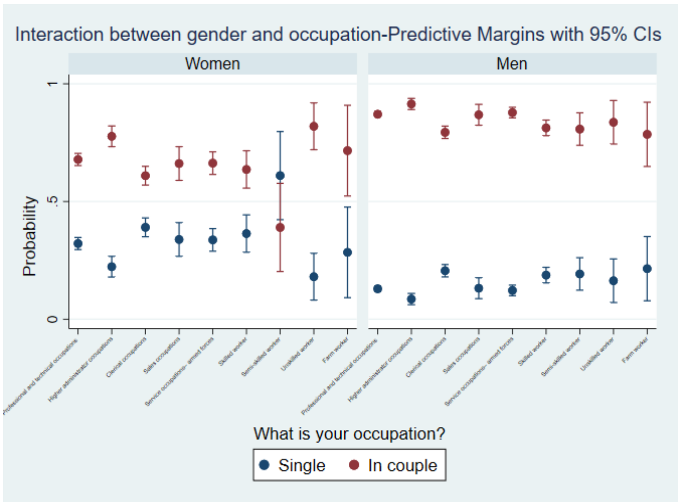
13. Although, by adopting an intersectional perspective and including age, occupation, personal income, field, and level of study as control variables in the model, the probability for men to join the cooperative is weakened, as the odds ratio drop from 3.06 to 1.89. This underlines the fact that inside the couple, power relations regarding energy issues are not only a matter of gender but depend also on other factors. For example, income is a very important dimension impacting the probability to represent the family in the cooperative. The odds of being in a couple and representing the family in the energy communities are 101 times higher for people earning more than 5000€ compared to those earning less than 1000€ per month. Age is also positively correlated with being the one joining the cooperative. People over 60 years old are more likely to represent the family. Finally, surprisingly, having a degree in STEM compared to having a degree in humanities is not associated with joining the cooperative, despite the fact they are more entitled than others.

14. When gender is interacted with these factors, two things emerge:

- A constant trend for men, generally over the average of 80% of probabilities to be in a couple and showing that when people are in couple, energetic decisions are taken by men, even in energy communities promoting fairness and inclusivity.
- Males are less impacted by variations in their social position, while for women things are more complex.

15. **<u>Occupation’s effect</u>**: Women employed in higher administrative functions and unskilled jobs have a high probability to be those joining the cooperative when they are in couple, respectively 79.28% and 82.32%, while the probability is much lower for female semi-skilled workers (28.55%) or for those with clerical functions. As regards men, the probability is on average higher compared to women. Those in higher administrative functions have a probability of 91.22% of joining the cooperative, unskilled workers 83,57% of probability, while clerical workers and farmworkers 79%. This means that for men, regardless their occupation, are almost always sure to be the one representing the family in the cooperative and the main shareholder, while for women, occupation explains in part the variation in the participation rate.

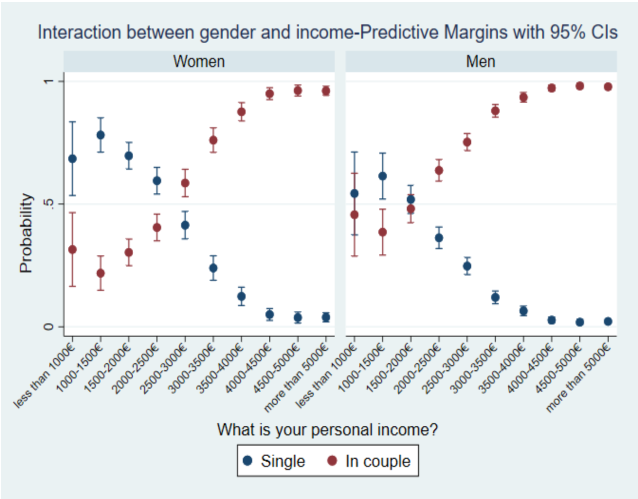
Graph 7.1: Interaction between gender and occupation for joining the cooperative



16. **<u>STEM effects:</u>** While previously we find that having studied STEM does not affect participation in the cooperative, the interaction effect between gender and field of study reveals that STEM studies impact women's probabilities of joining the cooperative. The predictive margins show that a woman with at least a degree in STEM has a 71.91% chance of choosing to join the cooperative, while those having at least a degree in humanities has a 63.21 % chance to be the representant. As regards men, those having a degree or above in STEM have an 86.89% chance of being in a couple, while those who studied in the humanities field an 84.86%.

17. **Income effects:** Women, having low incomes, are more much more likely to be single, when joining the cooperative. Moreover, if they are in a couple, they have almost no probability to be the one joining the cooperative. Indeed, the predictive margins show a threshold effect. Women earning less than 2500€ are much more likely to be single to those winning more than 2500€, while for a man earning less this threshold effect is much lower and equal to 1500€. This means that for women earning a minimum salary, who are largely underrepresented in the cooperative, deciding to join the cooperative is very difficult, especially when they are in couple. For higher incomes, the gender differences disappear.

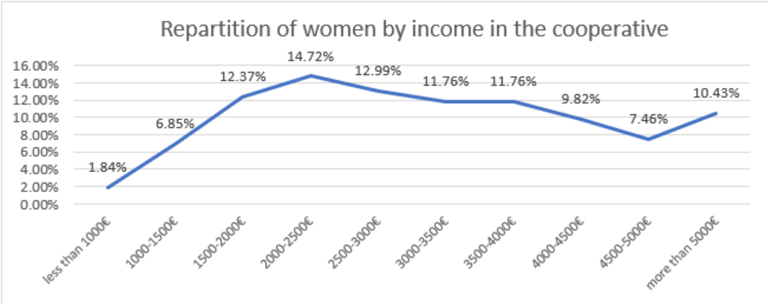
Graph 7.2: Interaction between gender and income for joining the cooperative



18. **Children's effect:** When including children, the odds ratio for men tend to rise from 1.89 to 1.92, meaning that when women become mothers the gender roles division is more unbalanced, and men are in charge of energetic issues.

19. This analysis shows that, differently from men, women's decision to join the cooperative depends on their socio-economic characteristics. While, regardless of gender, poor people have difficulties in joining the cooperative, the effect is stronger for women. Moreover, the presence of poor women is residual, since the one having a monthly income inferior to 1000€ per month represents only 1.84% of women joining the cooperative. Having a child reduces the possibility for women to join the cooperative even though being a mother tends to undermine women's careers and increase their charge of domestic works, putting them at the core of energetic use. Finally, some social positions are more legitimate to justify the fact that women engage with energy transition and the social construction of women representation to fit with energy transition.

Graph 7.3: Repartition of women by income in the cooperative



20. To conclude, this first analysis shows that while descriptive results show that women are largely underrepresented in energy communities, further investigation reveals that power relations and inequalities can in some cases be amplificated. In this way, inequalities are not only reproduced but even accentuated by energy communities.

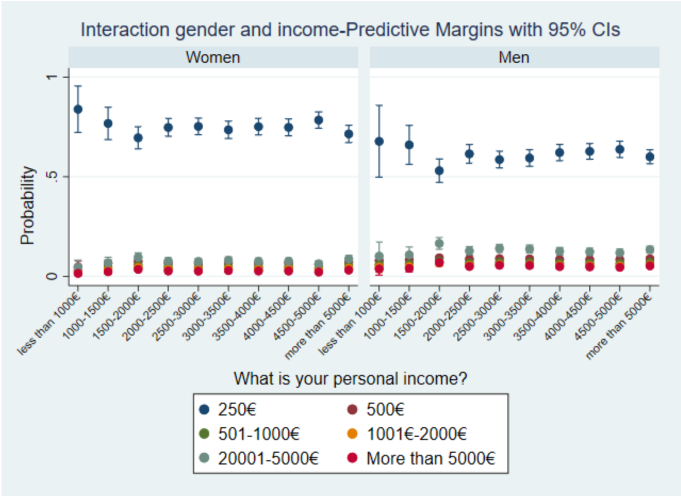
7.3.2.2 Investing

21. A second dimension related to the decision to join the cooperative is the investment in these organizations. Indeed, joining Ecopower requires a minimum investment, consisting in buying at least one share at the cost of 250€. Since investing is a gendered decision, it is interesting to see how men and women differ in their investment choices, especially if we adopt an intersectional point of view. Compared to the previous model, the seniority in the cooperative has been introduced since it has been shown that investments by new shareholders in Ecopower differ from the formers (Bauwens 2019).

22. **<u>Preponderance of gender effect</u>**:

    In the cooperative, the majority of Ecopower's shareholders were very prudent in their investments. 64.34% of them invested the minimum amount required. But, contrary to what could be expected, the decision on the amount to invest does not depend on income and type of occupation. Gender is, instead, one of the main determinants. Indeed, other things equal, the odds of men of high investment versus the combined middle and low investments is 1.61 times higher than that of women. As regards gender differences, on an all-other thing equal basis, women are more likely than men to invest the minimum (72% as opposed to 62%), about as likely to invest between 500€ and 5000€ (12% to 15%) and less likely to invest the maximum of 5000€ (16% versus 23%).

Graph 7.4: Interaction between gender and income for investing in the cooperative



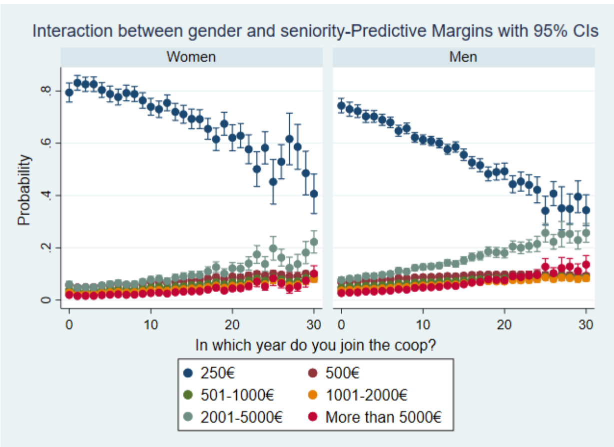
<u>Age effect</u>:

Age is also positively correlated with the amount invested, especially for people up to 50 who tend to invest more (**Table 7.2**). This is especially true for women over 60, of whom around 65% invested the minimum amount, compared to 85% of women between 18-30 years old. As regards men, they have around 50% of probability to invest the minimum, 79% if they are 18-30 years old.

<u>Seniority in the cooperative</u>:

A negative relationship is depicted, meaning that previous cohorts of investors tended to invest less than those currently joining the cooperative. Once again, a gender difference is observed, with women more cautious to invest.

Graph 7.5: Interaction between gender and seniority for investing in the cooperative



When women invest in the cooperative, they capitalize always less than men and this is true regardless of their income, occupation, field, level of study, age, and seniority. This means that psychological barriers are related to gender. Some factors as age can reinforce this relation, especially for young women.

7.3. Conclusion

23. The road to get equal participation of men and women in collective action initiatives in the energy field is still long. As other studies conducted in Germany showed, the profile of participants is quite homogeneous in Ecopower, since around 80% of shareholders are men. However, what this study highlights, is the fact that the problem is not only gender-related but also intersectional since many other factors overlap with gender inequalities and, in some cases, strongly reinforce them. Especially, energy communities are crossing by social representations where some women could feel more fitted as those occupying higher social occupation or earning high salaries, while others, already marginalized, would not even try to get these initiatives. Moreover, discriminations against women are not only social but also economic. Indeed, since women tend to have fewer resources and are more risk-averse, a concrete obstacle is the fact that participating in the cooperative requires financial participation, with a risk of loss in a sector still considered as an incumbent.

24. This is why energy communities led to reinforce women's marginalization in the energy sector, since collective action tends to create an atmosphere of conformity and dissuades some social groups from participating (Little 2002). Investing in these initiatives remains a prerogative of men, even more for those with both a high level of education and income. Moreover, if as seen before, energy communities reinforce inequalities in the energy world, they could also produce new forms of exclusion. Women in renewable energy industries represent 32% of the workforce but 20% of shareholders in energy communities and only 1.84% of those with fewer resources. Energy communities reinforce also gender roles since women with children have fewer possibilities to participate.

25. As a consequence, although energy communities endorse the idea of democracy and justice, it is hard for women to find their place in them (Łapniewska 2019), even being those at the core of domestic uses, which would benefit the most from it and who is also the more legitimate to speak about it. The findings of this study show that, for the moment, energy communities remain somehow a male business, where issues of power and inequalities will be huge to overcome. Indeed, energy communities are currently mainly lead as a business, which consists, even if democratic, on investing and managing renewable energy installations. More than focusing on a real behaviour's change where social issues are at the centre of these organizations, the attention has been mostly put on the efficiency of these organizations. However, this does not want to condemn the transformative potential of energy communities, which have been already showed and is more than promising

(Bauwens and Eyre 2017; Mundaca, Busch, and Schwer 2018), but to raise the issue that to work energy democracy needs strong institutions, able to ensure an equal representation of all citizens.

26. Indeed, the fact that little attention has been put on women's issues, can be easily understandable since to impose their model energy communities have been fighting against incredible obstacles to be recognized as a credible alternative to the current energy system. Energy communities must have proved their economical sustainability, their positive environmental impact, their capacity to deal with technical problems like connecting to the electricity network, overcome juridical issues, fight against disinformation and opposition especially regarding wind power (Martinez 2020; Jobert, Laborgne, and Mimler 2007; European Parliament 2018).This is why, since energy communities' s model begin to be stabilized, it is a key moment, fundamental to focus on the deployment of strong policies to foster inclusive participation (EU 2020).

27. Some countries have already been pioneers by proposing innovative measures to promote women's participation. For example, a solution to overcome the fact that marital status can hinder women's participation was adopted in Norway who included a double participation for people joining energy communities: one share for the man and one share for women (Łapniewska 2019). But other measures can be imagined. In Belgium, special electricity tariffs are available for people having economic difficulties, adopted also by Ecopower. Incentives could be stronger by imagining that one part of the benefits finance social programs for example attributing freely shares to a specific target of population. The launch of the new platform Equity by the European Union and the group of work, created by Rescoop are also good opportunities to create a benchmark of best practices helping to develop inclusivity.

28. However, since inequalities are multidimensional, it would be too easy to think that this kind of policy could escape from considering other dimensions. Barriers are numerous to include women in the energy world and policies have to take strong measures to empower those generally excluded from the public sphere and feel less legitimate to deal with an expert domain like energy. This would pass by focusing on energy communities 'process in terms of active participation but also outcomes by fostering the voice of those, who generally do not have one. Fostering a more fair and democratized engagement requires not only looking for shareholders but questioning deeper who are and what are the aspirations of energy users and how they will interact with the energy system (Søraa et al. 2020).
29. Then, the last point to stress regarding the advantages from reducing gender inequalities in energy communities, using the lens of intersectionality, is to go beyond questioning women's inclusion. By

consequences, helping to include women is also a commitment to fight against poverty and other discriminant factors of inclusion overlapping between them. This is why developing an intersectional consciousness is a way to bring a real change toward environmental sustainability, which could happen only with a strong social basis, requiring a fair representation of all society members (Terriquez, Brenes, and Lopez 2018).

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7.5. Annexe

Table 7.1: Logit Estimates-Join the cooperative

	Odds ratio	SE	95% CI LL	95% CI UL	P
Intercept	1,89	0,12	2,64	3,58	0,00
Gender (Women)					
Men	3,07	0,24	1,67	2,15	**0,00**

N = 5114 CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

Intercept	0,41	0,24	0,12	0,14	1,26
Gender (Women)					
Men	1,64	0,19	1,31	2,06	**0,00**
Field of study (High school diplom or below)					
Degree or above in humanities	0,57	0,09	0,42	0,77	**0,00**
Degree or above in STEM	0,58	0,08	0,44	0,76	**0,00**
Age (18-30)					
31-40	1,30	0,52	0,60	2,83	0,50
41-50	0,84	0,32	0,40	1,79	0,65
51-60	1,20	0,46	0,57	2,55	0,63
61-70	2,92	1,12	1,37	6,18	**0,01**
More than 70	4,13	1,64	1,90	8,98	**0,00**
Occupation (Professional and technical occupations)					
Higher administrator occupations	0,75	0,16	0,49	1,14	0,19
Clerical occupations	0,89	0,13	0,67	1,18	0,43
Sales occupations	1,31	0,36	0,76	2,26	0,33
Service occupations	1,84	0,32	1,32	2,58	**0,00**
Workers (skilled/semi-skilled/unskilled)	1,52	0,26	1,09	2,13	**0,02**
Income (less than 1000€)					
1000-1500€	0,38	0,18	0,15	0,94	0,04
1500-2000€	0,71	0,30	0,31	1,63	0,42
2500-3000€	1,59	0,67	0,70	3,61	0,27
3000-3500€	3,37	1,41	1,49	7,63	**0,00**
3500-4000€	8,69	3,69	3,78	19,98	**0,00**
4000-4500€	21,09	9,23	8,94	49,72	**0,00**
4500-5000€	68,96	33,13	26,90	176,80	**0,00**
more than 5000€	101,37	45,77	41,84	245,59	**0,00**

N = 5114 CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

Intercept	0,34	0,20	0,11	1,08	0,07
Gender (Women)					
Men	1,92	0,23	1,52	2,44	0,00
Have children	4,06	0,43	3,30	4,98	0,00
Field of study (High school diplom or below)					
Degree or above in humanities	0,58	0,09	0,42	0,80	0,00
Degree or above in STEM	0,58	0,09	0,43	0,78	0,00

Age (18-30)					
31-40	0,75	0,30	0,34	1,66	0,47
41-50	0,38	0,15	0,18	0,83	0,02
51-60	0,59	0,23	0,27	1,28	0,18
61-70	1,49	0,59	0,69	3,22	0,31
More than 70	2,14	0,87	0,97	4,76	0,06
Occupation (Professional and technical occupations)					
Higher administrator occupations	0,79	0,18	0,51	1,22	0,29
Clerical occupations	1,03	0,15	0,77	1,38	0,86
Sales occupations	1,21	0,35	0,69	2,13	0,50
Service occupations	1,92	0,34	1,35	2,72	**0,00**
Workers (skilled/semi-skilled/unskilled)	1,55	0,28	1,09	2,20	**0,01**
Income (less than 1000€)					
1000-1500€	0,38	0,18	0,15	0,97	0,04
1500-2000€	0,72	0,32	0,30	1,71	0,45
2500-3000€	1,61	0,70	0,68	3,79	0,28
3000-3500€	3,14	1,37	1,34	7,39	**0,01**
3500-4000€	7,64	3,38	3,21	18,20	**0,00**
4000-4500€	18,49	8,42	7,57	45,16	**0,00**
4500-5000€	54,19	26,89	20,49	143,32	**0,00**
more than 5000€	74,87	34,97	29,97	187,02	**0,00**

N = 5114 CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

Table 7.2: Ologit Estimates-Amount of investment

	Odds ratio	SE	95% CI		P
			LL	UL	
Gender (Women)					
Men	1,61	0,16	1,34	1,95	0,00
Field of study (Degree or above in STEM)					
Degree or above in humanities	1,05	0,12	0,84	1,31	0,67
High school diplom or below	1,22	0,12	1,00	1,48	0,05
Age (18-30)					
31-40	0,97	0,33	0,50	1,88	0,92
41-50	1,13	0,38	0,59	2,17	0,72
51-60	1,92	0,64	1,00	3,69	0,05
61-70	2,53	0,84	1,32	4,87	0,01
More than 70	2,89	0,99	1,48	5,66	0,00
Occupation (Professional and technical occupations)					
Higher administrator occupations	0,96	0,12	0,75	1,22	0,72
Clerical occupations	0,97	0,11	0,79	1,20	0,79
Sales occupations	0,74	0,15	0,51	1,09	0,13
Service occupations	0,89	0,10	0,70	1,12	0,31
Workers (skilled/semi-skilled/unskilled)	0,99	0,12	0,78	1,25	0,90
Income (less than 1000€)					
1000-1500€	1,07	0,53	0,40	2,82	0,90
1500-2000€	1,71	0,78	0,69	4,20	0,24
2500-3000€	1,30	0,59	0,53	3,15	0,57
3000-3500€	1,42	0,64	0,59	3,44	0,44
3500-4000€	1,43	0,64	0,59	3,46	0,43
4000-4500€	1,47	0,66	0,61	3,56	0,39
4500-5000€	1,59	0,72	0,66	3,85	0,30
more than 5000é	1,71	0,76	0,71	4,09	0,23
Date join the cooperative	1,05	0,01	1,03	1,06	0,00

N = 5114 CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

Chapter 8: Discussion and conclusion

This chapter aims to make the point by discussing the main findings of this study from a theoretical and practical perspective as also its added value. Remind the main research question leading this thesis has been: **do energy communities present a transformative political and social potential towards more energy democracy and justice in the energy world?** In this view, various dimensions of energy democracy and justice have been investigated during this thesis in order to understand if energy communities as a new form of organization could be really linked to a disruptive way to manage energetic resources. From a theorical point of view, some classical determinants of collective action initiatives have been analyzed, while some issues still understudied have been better framed as inequalities into energy initiatives. From an empirical point of view, the aim was to bring more knowledge on this issue and help energy communities to foster democracy and justice in their current practices.

8.1. Democracy and polycentricity

Referring to the deployment of a new energetic system polycentric and the case of France, as emphasized in the introduction, these conclusions show that in France for the moment, most of the projects correspond to a bottom-up logic and are led by citizens. This result is particularly interesting when compared to what happens in other countries that are more advanced in the development of these projects and would be further investigated in my future research. As already observed, such as in Germany, some drifts could happen and will ask for specific policies to avoid that power asymmetries appearing between stakeholders dealing with different rationalities and values. this thesis could bring some support to better understand how some countries as France better manage to include citizens directly in the ownership and management of their energy communities. In this sense, and since the practical application of my work thesis has been a driver, I have been very delighted to have been invited to present my work during *the Multi-level governance and climate action*, in Berlin in October, opening the discussion on this issue in Germany where windows dressing in energy communities projects is a problem.

In particular, one this point, I would really insist on the role of the strong network in France gathering by Energie Partagée, which should be more investigated in the future (Huybrechts and Haugh 2018; Parag and Janda 2014). In this case, it would be interesting to concentrate on Energie Paragée, relating in this case to the link between collective action initiatives and the actor-network theory. By providing help, formations and organizing meetings between shareholders allowing to create a common referential and culture, it seems that Energie Partagée could somehow counterbalance the risk of confiscation of these projects to serve private interests. This is even truer that the LER, which is the part of Energie Partagée network acting the department of Meurthe and Moselle (Nancy) is currently trying de fact to create a culture of collaboration between different actors. For example, they have been organizing formations designed for private actors to help them to build renewable energy projects including local citizens.

This is even more important since in the North-West of France since there is a trend for private actors to use depraved territory without including and providing benefits to the local population in which is anchored the projects, confirming the work of Magnagni eta. (2021). Especially, the North-West of France is characterized by a high level of unemployment, and oft educated people choose to leave. This means that their territories are particularly vulnerable and it is thus not so surprising that this region has one of the highest levels of renewable energy capacity installed, but fast no one renewable energy projects led by citizens has been developed so far (Magnani e Carrosio 2021). In this sense, one contribution of my thesis has been to propose to some cities to focus on this contradiction, an interest already sous-jacent but difficult since of a lack of competencies perceived on the territory. Already I have been initiating a collaboration with one municipality in the province of Haute-Marne, pretty interesting since it one of the places with the highest level of Gini coefficient in France, to advise them on some designs which could fit with the ideal of democracy and justice.

Initiating this activity of consulting has allowed me to raise another issue that I would also pursue at the theoretical level, focusing on the role of civic energy, as an actor of the transition. The general trend identified in the first chapter, is that renewable energy projects are increasingly adopting collaborative governance. It would be thus interesting to frame how in this kind of design public authorities will be managing to create a local culture of participation and engagement keeping the citizen ownership and the community logic(Wittmayer et al. 2021). In a French country characterized by centralism and a strong presence of the state, this is even more interesting to question to see if there is a risk to re-tip over in a top-down approach. In this regard, the recent application of the directive RED II goes in the right direction, putting as a fundamental issue the proximity as a prealable condition of an energy community.

Therefore, shifting to a decentralized level will require taking into consideration the political and social dimensions of energy communities and the diversity of actors implicated (Avelino and Wittmayer 2016; Lupi et al. 2021). In this, a new direction for the research for Italy could be to identify territorial and local originalities in the deployment of these projects. For example, for me, who are French, it was a very interesting fact is for example that the Pope has requested the local priests to help the development of renewable energy, for example, by proposing to use their roofs, showing that in this case, the church could be also a new stakeholder of renewable energy projects. The cathedral of Bologna especially is an interesting case in the energy community's landscape.

8.2. And what role will shareholders play in these changes?

Focusing on the micro-level and the shareholders of these initiatives has been a great opportunity to better understand their pattern of engagement in their organizations but also more deeply in the society. Far from the idealized vision of these shareholders(Strachan, Cowell, Ellis, Sherry-Brennan, et al. 2015; Szulecki 2018), few citizens participating in these projects are likely to be engaged in their communities. They are, for example, a small minority to be present during the general assembly and fast no one has been volunteering. Furthermore, the perspective of empowerment provided in theory by these initiatives can also be enquiring. Therefore, on the one hand, energy communities can be considered as a strong vector of energy democracy by putting citizens at the core of their ownership and providing the tools to participate in these projects effectively. Indeed, these organizations adopt a model of deliberative democracy with an arena of deliberation and care for developing competencies for their shareholders. On the other side, as shown by the prisoner's dilemma, it is likely that without incentives, people are willing to consecrate their time to manage a shared resource (Olson 1965; van Veelen and Eadson 2019).

But at this end, should we wait really for an active engagement of the shareholders as a prerequisite condition of this concept, or should we consider that the perspective that citizens already become the owners of these installations and get financial benefits is already a form of energy democracy which whom we could be already satisfied(Crane, Matten, and Moon 2004; Rosenberg and Palgrave Macmillan 2010)? As shown in the literature, acting in horizontal organizations where each person can have a world to say could be complicated. The executive boards of energy communities projects have been evocated already this issue and sometimes, they do not say everything to their shareholders to avoid lacking too much time to explain unimportant issues (Van Veelen 2018). Then, a last issue to consider is that the fact that energy communities are already accomplishing one of the most critical shifts in the energy market, and asking too much of their shareholders could be seen as a risk for their development in terms of efficiency but also for their attractiveness since some people could be reluctant to engage in these organizations if they are asking too much of their time (Olson 1965).

More deeply, Ecopower is particularly relevant showing to answer to this issue. Even if, as shown by my results, the engagement of their shareholders could be questioned, they still have changed the European landscape. Ecopower has become a strong actor to push the development of energy communities, bringing changes at the system level and being considered as a social movement. For example, the president of Ecopower is also the one of Rescoop, a political association gaining in attention at the European level regarding energy transition. Ecopower is also leading a consortium of cooperatives which are going to be the first to implant. This proves that despite a low level of engagement, cooperatives could manage to assume their roles and increase the collective provision. This issue is particularly important to raise at a time where it is expecting that energy communities gain in size and thus following the trend between collective action initiatives and size, their shareholders would be less inclined to freely invest their time.

8.3. The real issue: energy justice

If as suggesting, one possibility for energy communities could be to put some incentives to foster participation(Esteban e Ray 2001), I tend to believe that today for energy communities the most important issue relates to the second focus of this thesis: energy justice. Indeed, as shown by this study, the homogeneity across the shareholders is strongly present. Most of them have an high income and are male. Furthermore, people participating in energy communities are already largely caring for energy issues and, more broadly, sustainability. For example, in this study, 60% declares already managing their bills before joining collective action initiatives. Therefore, even by incentivizing people to participate more deeply in the cooperative, it is unlikely that the disruptive potential of energy communities will rise so much. More than incentivizing the participation of people already aware of this issue, I think that energy communities should be more inclusive. If not, a two-tier society could be created, and energy transition will be shaped by only one part of the population and reinforcing a cycle of privileges (Bosch e Schmidt 2020; Calhoun 2015).

This is why, one part of this thesis has been consecrated to women since they are more touched by energy poverty with essential consequences for their health and their children, spending much time at home (Clancy 2002; 2019). Often, scarce materials are used to provide energy to the household, and the World Health Organisation estimates that each year, 4.2 million people die of this. I think it is one this point that energy communities should be wait and should really make an effort on their design. If in their values they have declared to care for social issues, few have really implanted programs to question the barriers to the participation in energy communities(Hanke e Lowitzsch 2020). In this sense, I am very happy that my results have been helping the staff of Ecopower to draw a gender plan to ensure a better women representation in these initiatives. This is even more important that as shown by my thesis regarding democracy and the attention they could give to energy justice, it could not always be expecting too much from the shareholders. They are oft few aware and put these issues at the top of agenda of the cooperative and are even in some cases, reluctant to this model. Therefore, some external pressures must come to led them to better understand how they can really help to be more inclusive.

8.4. Theoretical added values

Theorically, this point led especially to underline two main added-value of my thesis regarding the gap between the pro-social and environmental values declared in the study as motivation to join the cooperatives and the current behaviours of the shareholders. If this phenomenon has already been highlighting in other context, it was also important to show that this trend also appears in energy communities (Huddart Kennedy et al. 2009; Grimmer e Miles 2017). For example, if the shareholders of Ecopower are 94% to say that the environmental impacts and 89% that social impacts are important for them to join the cooperatives, a dichotomy appears since half of them are not adopting sustainable behaviours or tend to question the fairness principles on which is based the cooperatives. As strongly underlined by the European institutions, energy poverty concerns 82 millions of shareholders in the European Union, a number which could be undermined due to the absence of Data regarding this issue (Hanke and Lowitzsch 2020). With energy communities seen as a strong actor to fight against them, despite the fact that shareholders views have not been assessing before, the risk is to put on the shoulders of this community a role that they won't be willing to assume. Therefore, when studying collective action initiatives, it could be important not to focus only on the declared motivations or interest of the shareholders but going deeper questioning their current practices in their organizations.

This raises a second point which is the risk of polycentry and somehow a way for the state to disengage of this responsibility to assume its role. In this sense, I follow the views of Hanke et al. (2021) suggested, energy communities cannot be asking to resolve everything without having the means to do it. Energy communities have already face numerous difficulties to growth and to address already more than other market actors social and environmental dimensions of energy transition. Postulating because of this, they would be able to face social and political issues, which have still not been resolved from now as civic participation or inclusion, appears unreasonable and somehow a neoliberal view by using decentralization as a way to disengage (Kashwan, MacLean, e García-López 2019). This is why I suggest, instead, that energy communities should be inserted into more global policy at national and European levels, with the real means to bring real political and social changes. This road seems to be opened with the application of the directive RED II and is currently investing by scholars, which would a crucial issue to analyze under a political and social lens. Energy policy through should cross over with social policies, fostering the participation of those having the most needs in the energy transition (Martiskainen, Heiskanen, e Speciale 2018).

Finally, other findings of this thesis, by adopting a cross-comparison design between Southern Europe and the Northern Europe, is to question how some classical determinants of collective action can impact these initiatives. This dimension was especially important to question in this thesis since an interrogation is currently to better understand which social and political paths will take energy communities when growing. As shown, the size impact the participation confirming the relations already highlighting by Olson 60 years ago. On the other side, I suggest that more research work could be lead on it since even with a low level of individual contribution, the collective provision could still be high, with the heterogeneity of the group as a way to diversify competencies and not requiring the participation of each shareholders as it has been confirmed by the success of Ecopower (Poteete e Ostrom 2004).

Then, my results go in the sense of the main critics of the Institutional Analysis Development Framework with the needs to consider more broader the socio and territorial context in which are anchored these projects, the most significant variables to understand behaviour's paths of the shareholders(Cole, Epstein, e McGinnis

2019). The shareholders of Ecopower are less caring for energy justice issues than the Italian ones as they appear also less engaged regarding sustainable behaviours, even controlling for the size and the maturity of these initiatives. This shows the importance to study these initiatives not as a whole but in their diversity and to consider more and more the Southern Europe and its particularities, which is still largely understudied despite a context and some relevant projects to address this issue (Magnani e Carrosio 2021).

8.5. Final remarks

Following the conclusions of this dissertation, it is thus important to finally answer to the main research questions. Indeed, energy communities could be somehow underlined for their political transformative views especially regarding the way they are implanting a new decentralized form of governing energy transition. However, things are not easy especially when they ask to different actors to collaborate and profit is also an important issue of energy transition, which can lead to forget that the first propose of these initiatives which was to deeply change the society thanks to energy.

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9.Appendix

9.1. Survey diffused to *Ecopower* shareholders

Uw betrokkenheid bij Ecopower

Beste coöperant

Ecopower is partner in het Horizon 2020 ASSET-project, een studie over de deelname aan burgerenergieprojecten zoals Ecopower. In het kader van dit project stelden onderzoekers van de universiteit van Milaan deze vragenlijst op die we verspreiden via verschillende energiecoöperaties in Europa.

De vragenlijst vraagt ongeveer twintig minuten van uw tijd. Uw antwoorden zijn echt heel belangrijk om onze leden beter te leren kennen en het beleid en de communicatie van Ecopower daarop af te stemmen. Uw deelname is volledig anoniem. U kunt het invullen van de vragenlijst op elk moment onderbreken. Uw antwoorden worden bewaard, u kunt dus pauzeren wanneer u wilt.

Ecopower en de onderzoekers danken u voor uw deelname.

Deze enquête werd oorspronkelijk opgesteld in het Frans. Daarom staan een aantal informatiekaders van het survey-programma nog in het Frans. De vragen zijn allemaal in het Nederlands.

Toestemming voor de verwerking van informatie

Ik verklaar dat ik meerderjarig ben en dat ik op de hoogte ben van de doelstellingen van het onderzoek: het vrijwillig beantwoorden van de vragenlijst.

Ik ben er ook van op de hoogte dat ik het invullen van de vragenlijst op gelijk welk moment, zonder een reden op te geven en zonder gevolgen, kan stopzetten. Overeenkomstig de geldende wetgeving (D. Lgs 196/2003 e EU GDPR 679/2016), word ik ervan op de hoogte gebracht dat mijn persoonsgegevens strikt anoniem worden behandeld en zullen worden onderworpen aan statistische verwerking in geaggregeerde (verwerkte) vorm, om te kunnen verspreiden in het kader van evenementen en wetenschappelijke publicaties.

- Ik ga akkoord
- Ik ga niet akkoord

Om deel te nemen moet u uw toestemming geven.

Wie in uw huishouden besloot om coöperant te worden van Ecopower?

Deze vragenlijst is bedoeld voor wie zelf besliste om coöperant te worden. Het is dan ook die persoon die de vragenlijst invult: degene in het huishouden die als eerste voorstelde om mee te doen.

Wie in het gezin stelde als eerste voor om coöperant te worden van Ecopower?

- Ikzelf
- Mijn partner
- Een van onze kinderen
- Een andere person

Bedankt om de vragenlijst volledig in te vullen!
Dan vult deze persoon de vragenlijst in. Het is heel belangrijk voor het onderzoek dat we de informatie rechtstreeks krijgen van degene die het initiatief nam. Dank u!
Startvragen

Hoe identificeert u zich?

- Man
- Vrouw
- Ander/Ik herken me niet in een van beide groepen.

Wat is uw leeftijd?

- 18 – 30 jaar
- 31 – 40 jaar
- 41 – 50 jaar
- 51 – 60 jaar
- 61 – 70 jaar
- Ouder dan 70

Uw betrokkenheid bij Ecopower
In welk jaar bent u coöperant geworden van Ecopower? Was u daarvoor lid van een milieu- of natuurorganisatie?

- Ja
- Nee
- Ik denk het niet

Welke organisatie?

In welke mate speelden de volgende elementen een rol om coöperant te worden van Ecopower? Duid aan op een schaal van 1 (helemaal niet belangrijk) tot 5 (heel belangrijk).

- Productie van hernieuwbare energie
- Het leek me een goede investering
- De transparantie van de coöperatie
- Democratisch beheer (inspraak en één persoon = één stem)
- Een betere toekomst voor de komende generaties
- Ik wilde elektriciteit afnemen van Ecopower
- Ik heb zonnepanelen

Wie heeft u het meest beïnvloed? Was dat

- Een man
- Een vrouw
- Andere
- Uw mening over energiekwesties

Was er bij uw beslissing om coöperant te worden een persoon in uw omgeving (bv. een familievriend) die u in het bijzonder heeft gemotiveerd?

- Ja
- Nee
- Ik weet het niet

In welke mate bent u het eens met de volgende beweringen? Duid aan op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens).

- Soms voel ik me niet in staat om de investeringskeuzes van Ecopower te begrijpen.
- Soms heb ik het gevoel dat ik niet begrijp hoe het projectmanagement werkt (bv. wie beslist en hoe).
- Ik heb het gevoel dat ik bij Ecopower mijn mening kan geven over hoe het bestuursorgaan moet
- handelen.

In welke mate bent u het eens met de volgende beweringen? Duid aan op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens).

- Het is gemakkelijk te begrijpen hoe zonnepanelen werken.

- Het is gemakkelijk te begrijpen hoe een windturbine werkt.
- Ik begrijp niet hoe de door Ecopower geproduceerde elektriciteit op het net wordt herverdeeld.

De impact van Ecopower

In welke mate bent u het eens met de volgende beweringen? Duid aan op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens).

- Ecopower kan bijdragen tot de ontwikkeling van nieuwe, duurzame manieren om energie te produceren en te verbruiken.
- Coöperant zijn van Ecopower moedigt aan tot milieuvriendelijker gedrag.

In welke mate bent u het eens met de volgende beweringen? Duid aan op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens).

- Het is moeilijk om inzicht te krijgen in het wettelijke en regelgevende kader voor hernieuwbare energie
- (bv. steunmechanismen...).

- Het is gemakkelijk om de hinderpalen voor de verdere ontwikkeling van hernieuwbareenergiebronnen
- te begrijpen, bijvoorbeeld het risicovoor de stabiliteit van het net.

Uw deelname aan de coöperatie

Hebt u ooit deelgenomen aan een vergadering of aan een andere bijeenkomst van Ecopower (algemene vergadering, Energiecafé, infomomenten over een project, feestelijke bijeenkomst …)?

- Ja
- Nee
-

Was dat een online of een gewone, fysieke vergadering of bijeenkomst?

- Online
- Fysieke bijeenkomst/vergadering
- Allebei, zowel online als fysiek
- Ik weet het niet meer

Welke soort bijeenkomst verkiest u?

- Online
- Fysieke vergadering/bijeenkomst
- Allebei

Kunt u zeggen waarom?

Denkt u dat u ook had deelgenomen als de bijeenkomst fysiek was georganiseerd?

- Ik denk van wel.
- Ik denk van niet.
- Ik weet het niet.

Waarom denkt u dat u niet had kunnen deelnemen aan de fysieke bijeenkomst?

- Professionele verplichtingen
- Familiale verplichtingen (zorg voor de kinderen, andere taken thuis, enz.)
- Afstand tot de ontmoetingsplaats, lange reistiid
- Ik had al een andere afspraak
- Andere

Graag specificeren.

Denkt u dat u ook had deelgenomen als de bijeenkomst online was georganiseerd?

- Ik denk van wel.
- Ik denk van niet.
- Ik weet het niet.

Waarom denkt u dat u niet had kunnen deelnemen aan de online vergadering of bijeenkomst?

- Geen computer of tablet
- Professionele verplichtingen
- Familiale verplichtingen (zorg voor de kinderen, andere taken thuis enz.).
- Ik doe niet graag online mee
- Andere

Graag specificeren.

Hebt u, sinds u lid bent van Ecopower, ooit deelgenomen aan een seminar, een cursus, een workshop of een conferentie over hernieuwbare energie?

- Ja
- Nee

Waarom niet?

- Ik ben niet geïnteresseerd.
- Ik heb het al te druk.
- Andere

Graag specificeren.

Ging het om een fysiek moment of een online-initiatief?

- Een fysiek moment
- Online
- Zowel online als fysiek

Hebt u ooit rechtstreeks contact gehad met iemand van het bestuursorgaan van Ecopower of met personeel van Ecopower?

- Ja
- Nee

Wat is het geslacht van deze persoon?

- Man
- Vrouw
- Andere/ Ik weet het niet

Als u een vraag of probleem hebt van technische aard, met wie neemt u dan gewoonlijk contact op?

Het algemene nummer of het algemene e-mailadres Iemand die u al kent in het bestuursorgaan of bij het personeel

Andere

Graag specificeren.

Met wie hebt u uiteindelijk gesproken?

- Man
- Vrouw
- Andere/ Ik weet het niet

Duid aan op een schaal van 1 (helemaal niet) tot 5 (absoluut), hoe verbaasd u was dat u een technische kwestie met een vrouw moest bespreken?

- 1 Helemaal niet
- 2 Een beetje
- 3 Verbaasd

- 4 Heel verbaasd
- 5 Absoluut

Interacties tijdens vergaderingen/ontmoetingen

Bent u het eens met de volgende beweringen? Duid aan op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens).

- Tijdens vergaderingen van Ecopower merk ik dat mensen anderen onderbreken terwijl ze praten.
- Tijdens vergaderingen van Ecopower merk ik soms dat mensen te agressief zijn in de manier waarop
- ze communiceren.
- Ik voel me niet op mijn gemak om tussen te komen tijdens vergaderingen of bijeenkomsten.
- Ik vind dat mannen vaker praten dan vrouwen tijdens vergaderingen of bijeenkomsten.

Technologie en samenleving

Bent u het eens met de volgende beweringen? Duid aan op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens).

- Ecopower moet meer acties ondernemen op het gebied van milieu- en klimaateducatie, bijvoorbeeld in scholen.
- Ecopower moet meer evenementen organiseren om de coöperanten te ontmoeten.

Bent u het eens met de volgende beweringen? Duid aan op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens).

- Energie moet een gemeenschappelijk goed (*common*) zijn dat door de burgers wordt beheerd en het mag niet als commercieel product worden beschouwd.
- Leden/coöperanten die het meest hebben geïnvesteerd, moeten meer inspraak hebben dan anderen.
- Energie moet minder kosten voor de armste mensen.
- Ecopower moet zich richten op de meest kwetsbare mensen om energiearmoede terug te
- dringen.
- Ecopower moet zich richten op kansarme groepen om hen te helpen hun energieverbruik beter te
- begrijpen en te beheren.

In welke mate zijn deze aspecten belangrijk voor de coöperatie? Duid aan op een schaal van 1 (helemaal niet belangrijk) tot 5 (helemaal belangrijk).

- De economische aspecten (besparing op energiekosten, winst met de verkoop van energie, enz.)
- De maatschappelijke aspecten (bewustmaking inzake milieukwesties, bevordering van een duurzame en bewuste levensstijl, enz.)
- De ecologische aspecten (vermindering van de CO2-uitstoot, duurzameenergieproductie,
- enz.)

Gender en de energietransitie

Bent u het eens met de volgende beweringen? Duid aan op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens).

- Ik denk dat het voor mannen gemakkelijker is om de technische kwesties inzake energie te begrijpen.
- Ik denk dat ik de vaardigheden mis om de technische thema's van de coöperatie te begrijpen.
- Ik denk dat veel vrouwen terughoudend zijn om in een coöperatie voor burgerenergie te investeren, omdat energie sociaal gezien meer een zaak voor mannen is.

Bent u het eens met de volgende beweringen? Duid aan op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens).

- Het is belangrijk om vrouwen in het bestuursorgaan te hebben om een minder concurrentiële sfeer in de coöperatie te ontwikkelen.
- De aanwezigheid van vrouwen in het bestuursorgaan zorgt voor meer aandacht voor de toekomstige generaties.
- Een vrouwelijke voorzitter van de coöperatie zoumij motiveren om te participeren.
- Een vrouw als voorzitter van het bestuursorgaan of een meerderheid van vrouwen in het bestuursorgaan zou een belangrijk signaal zijn om vrouwelijke coöperanten aan te trekken.

Wij weten dat vrouwen minder aanwezig zijn dan mannen in burgerenergieprojecten. Hoe belangrijk vindt u de volgende elementen als verklaring daarvoor? Duid aan op een schaal van 1 (helemaal niet) tot 5 (helemaal).

- Vrouwen hebben minder technische vaardigheden dan mannen inzake energiekwesties.
- Vrouwen zijn niet erg geïnteresseerd in energiekwesties.
- Vrouwen hebben veel werk in het huishouden en hebben niet veel tijd om iets anders te doen.
- Vrouwen denken over hetalgemeen dat energiekwesties mannen aangaan.

- Mannen doen niet genoeg om vrouwen bijenergievraagstukken te betrekken.

Vrouwen zijn nog altijd ondervertegenwoordigd in burgerenergieprojecten. Met een antwoord op deze vragen willen we een beter inzicht krijgen in de rol van de vrouw in de samenleving. Beoordeel de volgende stellingen op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens).

- Een vrouw moet bereid zijn betaald werk (deels) op te geven voor haar gezin.
- Mannen moeten dezelfde verantwoordelijkheden op zich nemen als vrouwen wat huishouden en
- kinderen betreft.
- Als er weinig banen zijn, hebben mannen meer recht op een baan dan vrouwen.
- Het gezin moet prioriteit zijn in het leven.

Dagelijkse gewoontes in het gezin

Hoe vaak doet u het volgende? Duid aan op een schaal van 1 (ik doe het nooit) tot 5 (ik doe het altijd).

- Energie besparen
- Uitschakelen van elektronische apparaten in plaats van ze in stand-by te zetten
- Afval sorteren
- Plastic zakken vermijden
- Hervulbare drinkflessen gebruiken in plaats van plastic flessen
- Biologische producten kopen
- Korte afstanden te voet of met de fiets afleggen, in plaats van met de auto of de motorfiets
- Producten en materialen hergebruiken en recycleren
- Producten aankopen op basis van hun milieueffect.
- Fiets of openbaar vervoer verkiezen boven de auto.

Hebt u een partner?

- Ja
- Nee

Let u erop dat uw partner volgende zaken doet? Duid aan op een schaal van 1 (helemaal niet) tot 5 (altijd). Als hij/zij dit zelfstandig doet, kruist u de laatste kolom aan.

- Energie besparen
- Uitschakelen van elektronische
- apparaten in plaats van ze in stand-by te zetten

- Afval sorteren
- Plastic zakken vermijden
- Hervulbare drinkflessen gebruiken in plaats van plastic flessen
- Biologische producten kopen Korte afstanden te voet of met de fiets
- afleggen, in plaats van met de auto of de motorfiets
- Producten en materialen hergebruiken en recycleren als dat mogelijk is.
- Producten aankopen op basis van hunmilieueffect.
- Fiets of openbaar vervoer verkiezen boven de auto.

Hebt u (een) kind(eren)?

- Ja
- Nee

Let u erop dat uw kind(eren) volgende zaken doet/doen ? Duid aan op een schaal van 1 (helemaal niet) tot 5 (altijd). Als hij/zij dit zelfstandig doet/doen, kruist u zelfstandig aan. Als hij/zij te klein iszijn, kruis dan nvt aan.

- Energie besparen
- Uitschakelen van elektronische apparaten in plaats van ze in stand-by te zetten
- Afval sorteren
- Plastic zakken vermijden Hervulbare drinkflessen
- gebruiken in plaats van plastic flessen
- Biologische producten kopen
- Korte afstanden te voet of met de fiets afleggen, in plaats van met de auto of de motorfiets
- Producten en materialmen hergebruiken en recycleren
- Producten aankopen op basis van hun milieueffect.
- Fiets of openbaar Vervoer verkiezen boven de auto.

Wie in het gezin is volgens u het meest milieubewust?

- Ikzelf
- Mijn partner, mijn man/vrouw
- Ons kind/een van onze kinderen

Bent u, sinds u lid bent van Ecopower, betrokken geweest bij een of meer andere verenigingen?

- Milieu- of natuurvereniging
- Politieke partij of vereniging
- Vereniging van een ander type
- Geen andere vereniging

Welk soort vereniging?

Met welke coöperanten/leden van Ecopower gaat u om?

Met hoeveel mensen in de coöperatie hebt u contact, uw huishouden niet meegerekend?

- Geen
- 1
- 2
- 3 of meer

De persoon met wie u het meest omgaat in de coöperatie, is een

- Vrouw
- Man
- Ik weet het niet

Uw betrokkenheid bij Ecopower

Wat doet u al voor de coöperatie?

- Lezen van e-mails en/of de nieuwsbrief
- Deelnemen aan vergaderingen, infomomenten of evenementen.
- Deelnemen aan de algemene vergadering
- Vrijwilligerswerk
- Ecopower promoten (bv. flyers verspreiden, contact opnemen met potentiële nieuwe leden, enz.)
- Leiderschapsactiviteiten op zich nemen
- Geen activiteit
- Andere

Geef hier wat meer uitleg.

Wilt u graag een actievere rol spelen bij Ecopower?

- Ja
- Nee

Wat wilt u graag doen?

- Lezen van e-mails en/of de nieuwsbrief
- Deelnemen aan vergaderingen, infomomenten of evenementen.
- Deelnemen aan de algemene vergadering
- Vrijwilligerswerk
- Ecopower promoten (bv. flyers verspreiden, contact opnemen met potentiële nieuwe leden, enz.)
- Leiderschapsactiviteiten op zich nemen
- Geen activiteit
- Andere

Geef wat meer uitleg.

Wat heeft de coöperatie voor u al betekend?

Bent u het eens met de volgende beweringen? Duid aan op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens).

- Door coöperant te zijn van Ecopower ben ik beter onderbouwd om over energiezaken te praten met
- mijn vrienden of familie.
- Door coöperant te zijn van Ecopower kon ik technische vaardigheden/kennis ontwikkelen over hoe energie werkt.

Bent u het eens met de volgende beweringen? Duid aan op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens). Als u dit al deed voordat u lid werd van de coöperatie, kunt u kiezen voor de optie: "Ik deed dat al"

- Sinds ik lid ben van Ecopower, beheer ik bij mij thuis de elektriciteitsrekeningen.
- Sinds ik lid ben van Ecopower, ben ik minder bang om in het openbaar te spreken.
- Sinds ik lid ben van Ecopower, denk ik dat ik in mijn eigen omgeving iets voor milieu en klimaat zou kunnen doen,
- bijvoorbeeld in de plaats waar ik woon.
- Sinds ik lid ben van Ecopower, ga ik bewuster om met mijn energieverbruik.

Gender en de energiewereld

Bent u het eens met de volgende beweringen? Duid aan op een schaal van 1 (sterk mee oneens) tot 5 (sterk mee eens). Als u dit daarvoor al dacht, kruist u de laatste kolom aan.

- Sinds ik coöperant ben, besef ik dat vrouwen evenveel te zeggen hebben als mannen over de technische aspecten van energie.
- Sinds ik coöperant ben, besef ik dat vrouwen evenveel te zeggen hebben als mannen over kwesties zoals politiek en economie.
- Sinds ik coöperant ben, besef ik dat ik graag technisch werk op het gebied van energie had willen doen.
- Als een vrouw tot voorzitter van het bestuursorgaan wordt verkozen, zou ik beseffen dat vrouwen een grote rolkunnen spelen in de energietransitie.
- Als een vrouw tot voorzitter van het bestuursorgaan wordt verkozen, zou ik beseffen dat ik een verantwoordelijke functie kan opnemen in een sector zoals energie.
- Als een vrouw Ecopower zou leiden, zouik meer vertrouwen hebben om te participeren in de coöperatie.

Kunt u in het kort uitleggen wat u als vrouw aan de coöperatie hebt gehad?

Hebt u suggesties wat Ecopower zou kunnen betekenen specifiek voor vrouwen?

Ten slotte ...

Bent u ...

- Lid van de coöperatie
- Lid van de coöperatie en ook lid van het bestuursorgaan.
- Lid van de coöperatie en ook personeelslid
- Andere

Graag specificeren.

Wat is uw beroep? Als u op pensioen bent, duid dan uw laatste beroep aan.

- Vrije beroepen, intellectuele, wetenschappelijke en aanverwante beroepen zoals arts, leraar, ingenieur,
- kunstenaar of boekhouder
- Directeuren, hogere managers zoals bankiers, managers in grote ondernemingen, hogere ambtenaren,
- vakbondsleiders
- Staffunctie, projectmanager
- Administratief personeel als secretaris/secretaresse, directieassistent, boekhoudkundig assistent, enz.
- Salesbanen als sales manager, verkoper, verkoper, verzekeringsagent
- Dienstverlenende beroepen zoals restauranthouder, ober, bouwopzichter, kapper, politieagent, soldaat, enz.
- Supervisors en geschoolde arbeiders zoals voormannen, automonteurs, drukkers, elektriciens, enz.
- Halfgeschoolde arbeiders zoals metselaars, buschauffeurs, timmerlieden, loodgieters of bakkers
- Ongeschoolde arbeiders als arbeider, verwerker, ongeschoolde fabrieksarbeider
- Landbouwberoepen zoals landbouwers, landarbeiders, vissers, enz.
- Ik weet het niet

Wat is uw hoogst behaalde diploma?

- Lagere school of geen diploma
- Middelbare school
- Middelbare school met zevende jaar
- Professionele bachelor (vroeger A2-opleiding)
- Academische bachelor

- Master of licentiaat
- Doctoraat of specialisatie
- Ik weet het niet.

In welke richting bent u afgestudeerd?

- Geesteswetenschappen (letteren, taal, sociologie, psychologie, geschiedenis, enz.)
- Wetenschappen (wiskunde, natuurkunde, scheikunde, biologie, geneeskunde, agronomie, enz.)
- Kunst (Conservatorium, Academie voor Schone Kunsten, enz.)
- Technisch (ingenieur, architectuur)

Graag specificeren welke richting.

Hebt u zich tijdens uw studie meer verdiept in energiekwesties?

- Ja
- Een beetje
- Nee

Hoe zou u de plaats beschrijven waar u woont...

- ... een grote stad
- ... een voorstedelijk centrum of dicht bij een grote stad
- ... een middelgrote stad
- ... een dorp
- ... een gehucht, een vrijstaand huis of een boerderij

Hoeveel hebt u in Ecopower geïnvesteerd?

- 250 euro (één aandeel)
- 500 euro
- 500 tot 1000 euro
- 1000 tot 2000 euro
- 2000 tot 5000 euro
- Meer dan 5000 euro

Hier volgen vragen over uw inkomen. Als u deze vragen te persoonlijk vindt, hoeft u niet te antwoorden. Voor het onderzoek zijn ze echter van groot belang om de socio-economische achtergrond van de deelnemers mee in kaart te brengen.

Het nettomaandinkomen van mijn huishouden/gezin is

- Minder dan 500 euro
- 500 – 1000 euro

- 1000 – 1500 euro
- 1500 – 2000 euro
- 2000 – 2500 euro
- 2500 – 3000 euro
- 3000 – 3500 euro
- 3500 – 4000 euro
- 4000 – 4500 euro
- 4500 – 5000 euro
- Meer dan 5000 euro

Mijn persoonlijke nettomaandinkomen is

- Minder dan 500 euro
- 500 – 1000 euro
- 1000 – 1500 euro
- 1500 – 2000 euro
- 2000 – 2500 euro
- 2500 – 3000 euro
- 3000 – 3500 euro
- 3500 – 4000 euro
- 4000 – 4500 euro
- 4500 – 5000 euro
- Meer dan 5000 euro

Veel dank voor uw deelname. U hoort nog van de resultaten. Als u opmerkingen hebt, kunt u die in de ruimte hieronder achterlaten en op "Soumettre" klikken.

9.2. Survey diffused to *ènostra* shareholders

Impatto e ruolo delle donne nelle cooperative energetiche in Italia

I campi contrassegnati con un * sono obbligatori.
Questionario sull'inclusione nei progetti di cooperativa energetica
Gentile Signora, Gentile Signore,
Nell'ambito di una ricerca condotta per il dottorato in Sociologia Economica e Studi del Lavoro, l'Università Degli Studi di Milano sta effettuando un'indagine per capire la dinamiche della partecipazione nei progetti di cooperazione energetica.
Le ricercatrici e i ricercatori sono interessati a comprendere come le persone interagiscono tra loro e quali potrebbero essere gli ostacoli che frenano la loro partecipazione alla vita della cooperativa.
Il questionario richiede un piccolo sforzo, circa 10 minuti del Suo tempo, ma la Sua partecipazione è determinante per aiutarci a capire meglio come incrementare le iniziative per lo sviluppo delle energie rinnovabili.
La informiamo che la Sua partecipazione è totalmente ANONIMA e libera: può interrompere la compilazione quando crede, senza fornire alcuna spiegazione. Il rifiuto di partecipare al nostro studio non avrà nessun effetto per Lei. Se deciderà di interrompere la compilazione, tutte le informazioni che ci ha fornito saranno distrutte automaticamente. Le risposte sono ANONIME.
In alcuni casi, la prima domanda del questionario può prendere qualche secondo a caricarsi.
Per informazioni specifiche sulla ricerca e sul questionario, può contattare:

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Mail : aurore.dudka@unimi.it
Le ricercatrici e i ricercatori La ringraziamo per la Sua collaborazione, che sarà determinante per il successo della ricerca.

Consenso informato

Dichiaro di essere maggiorenne e di essere stato/a informato/a circa gli obiettivi della ricerca, che consiste nel rispondere alle domande del questionario su base volontaria. Le informazioni saranno raccolte in forma anonima, e non sarà possibile risalire in alcun modo a chi ha compilato il questionario. Sono stato/a informato/a che potrò ritirarmi in qualunque momento, senza fornire spiegazioni e senza alcuna conseguenza.
Sono inoltre stato/a informato/a che le mie risposte saranno soggette ad elaborazione statistica esclusivamente in forma aggregata, e in questa forma potranno essere inserite in pubblicazioni e/o congressi, convegni e seminari scientifici, nonché rientrare in pubblicazioni divulgative e sempre in forma aggregata nelle principali piattaforme social.

- **Acconsento (per partecipare è necessario fornire il proprio consenso)**
- **Non acconsento**

La ringraziamo per il Suo interesse per partecipare è necessario fornire il proprio consenso.

Nella sua famiglia, chi ha deciso di entrare nella cooperativa?

Il questionario è indirizzato alle persone che hanno scelto di partecipare a una cooperativa energetica. Per noi è molto importante che il questionario venga compilato dalla persona, nella Sua famiglia, che ha proposto per prima di entrare in ènostra.

Può dirci per favore chi, nella Sua famiglia, ha proposto per primo o per prima di entrare nella cooperativa?
al massimo 1 scelta/e

- Io
- Il/la mio/a compagno/a, marito/moglie
- I nostri figli, o uno/a di loro
- Altro (può precisare)

Le chiediamo di compilare il questionario per intero, grazie!
Le chiediamo gentilmente di chiedere al Suo/a compagno/a o marito/moglie di compilare il questionario. Per noi è molto importante raccogliere informazioni direttamente dalla persona che ha proposto l'adesione alla cooperativa. Grazie!
Le chiediamo gentilmente di chiedere a Suo/a figlio/a di compilare il questionario. Per noi è molto importante raccogliere informazioni direttamente dalla persona che ha proposto l'adesione alla cooperativa. Grazie!
Le chiediamo gentilmente di chiedere a questa persona di compilare il questionario. Per noi è molto importante raccogliere informazioni direttamente dalla persona che ha proposto l'adesione alla cooperativa. Grazie!

Alcune domande per iniziare

Può dirmi per favore come Lei si identifica?
al massimo 1 scelta/e

- Donna
- Uomo
- Altro

Specificare, se si ha il desiderio, come Lei si identifica
Qual è la Sua età?
La sua adesione alla cooperativa
In quale anno ha iniziato a fare parte della cooperativa? (se Lei è stato/a precedentemente membro di Retenenergie, lo scriva e inserisca l'anno, ad esempio: Retenenergie 2007). Lei faceva parte di un'associazione di protezione dell'ambiente o di altri tipi di organizzazioni ambientaliste, prima di aderire alla cooperativa?
al massimo 1 scelta/e

- Sì
- No
- Non ricordo
- **Può precisare quale?**

Su una scala da 1 (per niente importante) a 5 (assolutamente importante), in quale misura pensa che i seguenti elementi abbiano giocato un ruolo nella Sua decisione di unirsi alla cooperativa?

- Produrre dell'energia rinnovabile
- La prospettiva di fare un investimento remunerativo
- La trasparenza del funzionamento della cooperativa
- La gestione democratica (una persona=un voto)
- Un futuro migliore per le future generazioni

Nella Sua decisione di aderire alla cooperativa, c'è una persona a Lei vicina/cara che l'ha

particolarmente motivata?
al massimo 1 scelta/e

- Penso di sì
- Penso di no
- Non lo so

La persona che ha avuto l'influenza maggiore è:
al massimo 1 scelta/e
Donna
Uomo
Nessuno dei due, altro

La Sua opinione sulle questioni energetiche

Su una scala da 1 (per niente d'accordo) a 5 (del tutto d'accordo), può dire quanto è d'accordo con le seguenti affermazioni?

- A volte penso di non essere capace di comprendere le scelte di
- investimento della cooperativa.
- A volte penso di non essere capace di comprendere come funziona la
- gestione della cooperativa (per esempio, chi decide e come).
- Il consiglio di amministrazione della cooperativa permette alle persone
- come me di dire la propria opinione rispetto all'agire del consiglio stesso

Su una scala da 1 (per niente d'accordo) a 5 (del tutto d'accordo), può dire quanto è d'accordo con le seguenti affermazioni?

- E' facile capire come funziona un impianto fotovoltaico.
- E' facile capire come funziona un impianto eolico.
- Non riesco a capire come l'elettricità prodotta dalla cooperativa sia
- redistribuita nella rete.

Su una scala da 1 (per niente d'accordo) a 5 (del tutto d'accordo), può dire quanto è d'accordo con le seguenti affermazioni?

- E' difficile capire il quadro giuridico e la regolamentazione legata alle energie rinnovabili (per esempio, meccanismo di supporto, ...).
- E' facile capire le barriere allo sviluppo delle energie rinnovabili, per esempio i rischi di sovraccarico della rete.

L' impatto della Sua cooperativa

Su una scala da 1 (per niente d'accordo) a 5 (del tutto d'accordo), può dire quanto è d'accordo con le seguenti affermazioni?

- La nostra cooperativa aiuta a sviluppare nuove modalità sostenibili per produrre e consumare energia.
- Partecipare alla nostra cooperativa incoraggia i soci ad adottare comportamenti più sostenibili dal punto di vista ambientale.

La Sua partecipazione nella cooperativa

Ha già partecipato a uno o più incontri o assemblee della cooperativa?
al massimo 1 scelta/e

- Sì
- No

Perché?

al massimo 3 scelta/e

- Non mi interessa
- Ho già troppi impegni
- Altro

Può precisare:

Si trattava di un incontro/i o assemblea/ee online o in presenza?

al massimo 1 scelta/e

- Online
- In presenza
- Entrambe
- Non ricordo

Sarebbe riuscito/a a partecipare all'assemblea o incontro in presenza, se fosse stato organizzato con questa modalità ?

al massimo 1 scelta/e

- Penso di sì
- Penso di no
- Non saprei

Per quale ragione pensa che non avrebbe potuto partecipare in presenza? (Può sceltere più di una risposta)

al massimo 5 scelta/e

- Impegni di lavoro
- Impegni di famiglia (occuparsi dei figli, necessità della famiglia, etc.)
- Lontananza, tempi di trasporto troppo lunghi
- Avevo già altri impegni
- Altro

Può precisare:

Per quale ragione non ha partecipato all'assemblea o riunione online?

- Non avevo un computer/tablet a disposizione
- Avevo impegni di lavoro
- Avevo impegni in famiglia (occuparmi dei figli, altre necessità della famiglia)
- Non mi piace partecipare online
- Altro

Può precisare:

Quale modalità Lei ha preferito?

Lei ha già partecipato a un seminario, un corso, una conferenza sul tema delle energie rinnovabili?

al massimo 1 scelta/e

- Sì
- No

Perché?

- Non mi interessa
- Ho già troppi impegni
- Altro

Può precisare

Si trattava di un'iniziativa/e in presenza o online?

al massimo 1 scelta/e

- In presenza
- Online
- Entrambe

Lei ha già avuto modo di interagire direttamente con la Presidente della cooperativa?

al massimo 1 scelta/e

- Sì
- No

Lei ha già avuto modo di interagire direttamente con il Consiglio di Amministrazione della cooperativa?
al massimo 1 scelta/e
- Sì
- No
- Non ricordo

Se ha un problema tecnico, chi contatta generalmente?
al massimo 1 scelta/e
- Il numero verde a disposizione o l'email
- Una persona che Lei conosce già nel consiglio di amministrazione
- Altro

Può precisare:
Questa persona è:
al massimo 1 scelta/e
- Uomo
- Donna
- No lo so
- Altro

La cooperativa ha un buon numero di tecnici donne. Le è mai capitato di chiamare il numero verde e essere assistito/a da un tecnico donna?
al massimo 1 scelta/e
- Sì
- No
- Non ricordo

Da 1 (per nulla) a 5 (del tutto), quanto si è sorpreso/a di dover parlare di un tema tecnico con una donna?
al massimo 1 scelta/e
- 1
- 2
- 3
- 4
- 5

Se ha un problema amministrativo, chi contatta nella cooperativa?
al massimo 1 scelta/e
- Il numero verde a disposizione o l'email
- Una persona che Lei conosce già nel consiglio di amministrazione
- Altro

Può precisare:
Questa persona è:
al massimo 1 scelta/e
- Uomo
- Donna
- Non lo so
- Altro

Lei è un/a socio/a cooperatore, un/a socio/a sovventore o entrambi?
al massimo 1 scelta/e
- Socio/a cooperatore

- Socio/a sovventore
- Entrambi

Rispetto ai soci sovventori, Lei si sente più, meno o ugualmente legittimato/a a intervenire nelle attività della cooperativa?
al massimo 1 scelta/e

- Meno legittimato/a
- Ugualmente legittimato/a
- Più legittimato/a

Può spiegarmi perché?

Interazione durante gli incontri

Su una scala da 1 (per niente d'accordo) a 5 (del tutto d'accordo), può dire quanto è d'accordo con le seguenti affermazioni? Se non ha mai partecipato, non risponda alle domande seguenti.

- Durante l'interazione tra i membri della cooperativa, trovo a volte che le persone interrompano gli altri mentre parlano.
- Durante l'interazione tra i membri della cooperativa, a volte mi pare che le persone siano troppo aggressive nel loro modo di parlare.
- Non mi sento/sentirei a mio agio a intervenire durante gli incontri.
- Trovo che gli uomini prendono più spesso la parola delle donne.

Su una scala da 1 (per niente d'accordo) a 5 (del tutto d'accordo), può dire quanto è d'accordo con le seguenti affermazioni?

- Mi piacerebbe che la cooperativa sviluppasse di più azioni di educazione all'ambiente, per esempio nelle scuole
- Mi piacerebbe che la cooperativa organizzasse eventi (per esempio feste nei siti dove sono presenti gli impianti di energia rinnovabile della cooperativa) per incontrarci tra soci

Tecnica e società

Su una scala da 1 (per niente d'accordo) a 5 (del tutto d'accordo), può dire quanto è d'accordo con le seguenti affermazioni?

- L'energia dovrebbe essere un bene comune gestito dai cittadini, e non una cosa privata.
- I soci che hanno investito di più dovrebbero avere più potere degli altri.
- L'energia dovrebbe costare di meno per le fasce meno abbienti.
- La nostra cooperativa dovrebbe intervenire sulle fasce meno abbienti per ridurre la povertà energetica.
- Mi piacerebbe che la cooperativa si concentrasse sull'inclusione delle fasce meno abbienti per aiutarle a capire meglio la gestione dell'energia.

Su una scala da 1 (per niente) a 5 (del tutto), può dire quanto è importante per Lei nell'azione della cooperativa ciascuno dei seguenti elementi?

- L'impatto sociale (sensibilizzare la gente sui temi ambientali,
- promuovere stili di vita sostenibili e consapevoli, etc.)
- Gli aspetti economici (risparmiare sui costi energetici, guadagnare dalla vendita di energia, etc.)
- L'impatto ambientale (ridurre le emissioni di CO_2, produrre energia in modi sostenibili, etc.)

Donne e transizione energetica

Su una scala da 1 (per niente d'accordo) a 5 (del tutto d'accordo), può dire quanto è d'accordo con

le seguenti affermazioni?

- Penso che per gli uomini sia più facile comprendere le questioni legate all'energia, perché è una tematica tecnica.
- Sento che mi mancano le competenze per comprendere le tematiche tecniche nella cooperativa.
- Penso che molte donne siano frenate a investire in una cooperativa energetica perché ritengono che l'energia sia socialmente considerata come un affare per uomini.

Su una scala da 1 (per niente d'accordo) a 5 (del tutto d'accordo), può dire quanto è d'accordo con le seguenti affermazioni?

- Avere delle donne nel consiglio di amministrazione della cooperativa è importante per sviluppare relazioni meno competitive.
- Avere delle donne nel consiglio di amministrazione della cooperativa permette di mettere al centro della nostra azione una filosofia più orientata verso il rispetto delle generazioni future.
- Avere una donna presidente è un motivo per il quale mi piace essere nella cooperativa.
- Avere una donna come presidente della cooperativa, o una maggioranza di donne nel consiglio di amministrazione, è un segnale importante per attirare degli investitori femminili.

Sappiamo che le donne oggi sono ancora poco presenti nelle cooperative energetiche. Su una scala da 1 (per niente importante) a 5 (del tutto importante), può dire quanto ciascuna delle seguenti motivazioni è importante, secondo Lei?

- Le donne hanno meno competenze tecniche degli uomini nelle questioni energetiche.
- Alle donne non interessano molto le questioni energetiche.
- Le donne fanno molto lavoro in casa anche se lavorano, e hanno poco tempo per altro.
- Le donne in genere pensano che le questioni energetiche siano cose da uomini.
- Gli uomini non fanno abbastanza per coinvolgere le donne nelle problematiche energetiche

Le domande seguenti mirano a migliorare la nostra comprensione della partecipazione femminile nella vita pubblica in generale. Su una scala da 1 (completamente in disaccordo) a 5 (completamente d'accordo), può dire se:

- Gli uomini dovrebbero assumersi le stesse responsabilità delle donne verso la cura della casa e dei figli.
- Nella vita la famiglia dovrebbe avere la priorità su tutto.
- Quando ci sono pochi posti di lavoro, gli uomini dovrebbero avere la precedenza rispetto alle donne nella ricerca di un lavoro.
- Quando i genitori non vanno più d'accordo, sarebbe meglio che si separassero, anche se ci sono figli.
- Una donna dovrebbe essere disposta a ridurre il proprio tempo di lavoro per il bene della famiglia.

Le abitudini quotidiane in famiglia

Generalmente, su una scala da 1 (non lo faccio mai) a 5 (lo faccio sempre), quanto spesso fa le seguenti attività?

- Ridurre il suo consumo energetico
- Spegnere i suoi apparecchi elettronici piuttosto che metterli in modalità stand-by
- Fare la raccolta differenziata
- Evitare le borse di plastica
- Usare la borraccia anziché le bottiglie di plastica
- Consumare biologico
- Camminare sulle brevi distanze anziché usare l'auto/moto

- Ogni volta che è possibile, riutilizzare e riciclare prodotti e materiali
- Selezionare i prodotti da acquistare in base al loro impatto ambientale
- Preferire la bicicletta o i mezzi pubblici piuttosto che usare l'auto

Lei ha un compagno/a, o marito/moglie?

- Sì
- No

Quanto spesso sta attento/a che il compagno/a o marito/moglie faccia le azioni seguenti, da 1 (mai) a 5 (sempre)? Se il compagno/a o marito/moglie lo fa già da solo/a, può scegliere: Lo fa già da solo /a.

- Ridurre il suo consumo energetico
- Spegnere i suoi apparecchi elettronici piuttosto che metterli in modalità stand-by
- Fare la raccolta differenziata
- Evitare le borse di plastica
- Usare la borraccia anziché le bottiglie di plastica
- Consumare biologico
- Camminare sulle brevi distanze anziché usare l'auto/moto
- Ogni volta che è possibile, riutilizzare e riciclare prodotti e materiali
- Selezionare i prodotti da acquistare in base al loro impatto ambientale
- Preferire la bicicletta o i mezzi pubblici piuttosto che usare l'auto

Lei ha figli?

- Sì
- No

Quanto spesso sta attento/a che suo/a figlio/a, o i/le suoi/sue figli/e, faccia/no le azioni seguenti, da 1 (mai) a 5 (sempre)? Se suo/a figlio/a, o i/le suoi/sue figli/e, faccia/no già da solo/a, può scegliere: Lo fa/fanno già da solo/a.

- Ridurre il suo consumo energetico
- Spegnere i suoi apparecchi elettronici piuttosto che metterli in modalità stand-by
- Fare la raccolta differenziata
- Evitare le borse di plastica
- Usare la borraccia anziché le bottiglie di plastica
- Consumare biologico
- Camminare sulle brevi distanze anziché usare l'auto/moto
- Ogni volta che è possibile, riutilizzare e riciclare prodotti e materiali
- Selezionare i prodotti da acquistare in base al loro impatto ambientale
- Preferire la bicicletta o i mezzi pubblici piuttosto che usare l'auto

Secondo Lei, nella Sua famiglia chi è più consapevole sull'ambiente?

al massimo 1 scelta/e

- Io
- Il/La mio/a compagno/a o marito/moglie
- I/Le mie/i figli/e
- Altro

Può precisare:

Da quando fa parte della cooperativa, ha partecipato anche ad altre associazioni? Se sì, di che tipo?

al massimo 3 scelta/e

- Associazioni di protezione dell'ambiente
- Associazioni politiche
- Associazioni di altro tipo

- Nessun’altra associazione

Può precisare:

I membri della cooperativa con cui Lei interagisce

Con quante persone generalmente Lei interagisce nella cooperativa?
al massimo 1 scelta/e
- Nessuno
- 1
- 2
- 3 e più

Interazione con una persona

Nella sezione seguente le faremo alcune domande sulla persona con cui Lei ha più interazioni nella cooperativa, per comprendere le logiche della partecipazione alla vita della cooperativa. La persona con cui interagisce di più nella cooperativa è:
- *al massimo 1 scelta/e*
- Donna
- Uomo
- Altro
- Non lo so

Qual è il titolo di studio della persona con cui Lei interagisce di più nella cooperativà?
- *al massimo 1 scelta/e*
- Scuola primaria, o nessun titolo
- Scuola secondaria inferiore
- Scuola professionale (2-3 anni)
- Scuola secondaria superiore
- Laurea triennale o diploma universitario
- Laurea magistrale o vecchio ordinamento/Master
- Post-laurea (specializzazione, dottorato)
- Non lo so

Qual è l'età (anche indicativa) della persona con cui Lei interagisce di più nella cooperativa ?
al massimo 1 scelta/e
- Meno di 20 anni
- Tra 20 e 30 anni
- Tra 30 anni e 40 anni
- Tra 40 e 50 anni
- Tra 50 e 60 anni
- Tra 60 e 70 anni
- Più di 70 anni
- Non lo so

Qual è l'occupazione della persona con cui Lei interagisce di più nella cooperativa?
al massimo 1 scelta/e
- Professioni intellettuali, libere e scientifiche (es.: dottore - insegnante - ingegnere - artista – esperto
- contabile, commercialista)
- Direttore, funzioni dirigenti nell'amministrazione (es.: banchiere - direttore di grande azienda - consigliere
- di stato - dirigente sindacale)
- Settore impiegatizio (es.: segretario - impiegato d'ufficio - capo servizio - contabile)
- Settore vendite (es.: venditore - negoziante - commesso - assicuratore - rappresentante)

- Settore servizi (es.: ristoratore - agente di polizia - cameriere - portinaio - parrucchiere - militare
- sottoufficiale)
- Lavoratore specializzato (es.: capo cantiere - meccanico - tipografo - fabbricante attrezzi e stampi -
- elettricista)
- Lavoratore semi qualificato (es.: muratore - autista di autobus - operaio industria conserviera - carpentiere
- - lattoniere - panettiere)
- Lavoratore non qualificato (es.: operaio generico-facchino-operaio non qualificato)
- Lavoratore agricolo (es.: agricoltore - operaio agricolo - trattorista - pescatore)
- Senza occupazione
- Non lo so
-

Da quanto tempo, più o meno, fa parte della cooperativa la persona con cui Lei interagisce di più nella cooperativa?

al massimo 1 scelta/e

- Meno di un anno
- Tra 1 e 5 anni
- Tra 5 e 10 anni
- Più di 10 anni
- Non lo so

Quale ruolo ha nella cooperativa la persona con cui Lei interagisce di più ?

al massimo 1 scelta/e

- È solo socio/a
- È socio/a e membro attivo del consiglio di amministrazione
- È socio/a e membro dello staff
- Non lo so
-

Interazione con due persone

La prima persona con cui interagisce di più nella cooperativa è:

al massimo 1 scelta/e

- Donna
- Uomo
- Altro
- Non lo so

La seconda persona con cui interagisce di più nella cooperativa è:

al massimo 1 scelta/e

- Donna
- Uomo
- Altro
- Non lo so

Qual è il titolo di studio della prima persona con cui Lei interagisce di più?

- *al massimo 1 scelta/e*
- Scuola primaria, o nessun titolo
- Scuola secondaria inferiore
- Scuola professionale (2-3 anni)
- Scuola secondaria superiore
- Laurea triennale o diploma universitario
- Laurea magistrale o vecchio ordinamento/Master
- Post-laurea (specializzazione, dottorato)

- Non lo so

Qual è il titolo di studio della seconda persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Scuola primaria, o nessun titolo
- Scuola secondaria inferiore
- Scuola professionale (2-3 anni)
- Scuola secondaria superiore
- Laurea triennale o diploma universitario
- Laurea magistrale o vecchio ordinamento/Master
- Post-laurea (specializzazione, dottorato)
- Non lo so
- **Qual è l'età (anche indicativa) della prima persona con cui Lei interagisce di più?**

al massimo 1 scelta/e

- Meno di 20 anni
- Tra 20 e 30 anni
- Tra 30 anni e 40 anni
- Tra 40 e 50 anni
- Tra 50 e 60 anni
- Tra 60 e 70 anni
- Più di 70 anni
- Non lo so

Qual è l'età (anche indicativa) della seconda persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Meno di 20 anni
- Tra 20 e 30 anni
- Tra 30 anni e 40 anni
- Tra 40 e 50 anni
- Tra 50 e 60 anni
- Tra 60 e 70 anni
- Più di 70 anni
- Non lo so

Qual è l'occupazione della prima persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Professioni intellettuali, libere e scientifiche (es.: dottore - insegnante - ingegnere - artista – esperto
- contabile, commercialista)
- Direttore, funzioni dirigenti nell'amministrazione (es.: banchiere - direttore di grande azienda - consigliere
- di stato - dirigente sindacale)
- Settore impiegatizio (es.: segretario - impiegato d'ufficio - capo servizio - contabile)
- Settore vendite (es.: venditore - negoziante - commesso - assicuratore - rappresentante)
- Settore servizi (es.: ristoratore - agente di polizia - cameriere - portinaio - parrucchiere - militare
- sottoufficiale)
- Lavoratore specializzato (es.: capo cantiere - meccanico - tipografo - fabbricante attrezzi e stampi -
- elettricista)
- Lavoratore semi qualificato (es.: muratore - autista di autobus - operaio industria conserviera - carpentiere
- - lattoniere - panettiere)
- Lavoratore non qualificato (es.: operaio generico-facchino-operaio non qualificato)
- Lavoratore agricolo (es.: agricoltore - operaio agricolo - trattorista - pescatore)
- Senza occupazione

- Non lo so
-

Qual è l'occupazione della seconda persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Professioni intellettuali, libere e scientifiche (es.: dottore - insegnante - ingegnere - artista – esperto
- contabile, commercialista)
- Direttore, funzioni dirigenti nell'amministrazione (es.: banchiere - direttore di grande azienda - consigliere
- di stato - dirigente sindacale)
- Settore impiegatizio (es.: segretario - impiegato d'ufficio - capo servizio - contabile)
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- Settore servizi (es.: ristoratore - agente di polizia - cameriere - portinaio - parrucchiere - militare
- sottoufficiale)
- Lavoratore specializzato (es.: capo cantiere - meccanico - tipografo - fabbricante attrezzi e stampi -
- elettricista)
- Lavoratore semi qualificato (es.: muratore - autista di autobus - operaio industria conserviera - carpentiere
- - lattoniere - panettiere)
- Lavoratore non qualificato (es.: operaio generico-facchino-operaio non qualificato)
- Lavoratore agricolo (es.: agricoltore - operaio agricolo - trattorista - pescatore)
- Senza occupazione
- Non lo so

Da quanto tempo, più o meno, fa parte della cooperativa la prima persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Meno di un anno
- Tra 1 e 5 anni
- Tra 5 e 10 anni
- Più di 10 anni
- Non lo so

Da quanto tempo, più o meno, fa parte della cooperativa la seconda persona con cui Lei interagisce di più (circa)?

al massimo 1 scelta/e

- Meno di un anno
- Tra 1 e 5 anni
- Tra 5 e 10 anni
- Più di 10 anni
- Non lo so

Quale ruolo ha nella cooperativa la prima persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Solo socio
- 18
- Socio e membro attivo del consiglio di amministrazione
- Socio e membro dello staff
- Non lo so

Quale ruolo ha nella cooperativa la seconda persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Solo socio
- Socio e membro attivo del consiglio di amministrazione
- Socio e membro dello staff
- Non lo so

Interazione con tre persone e più

Nella sezione seguente cerchiamo di capire chi sono le tre persone con le quali Lei interagisce di più nella cooperativa. Se solitamente interagisce con più di tre persone, scelga per favore le tre persone con cui ha più relazione.

La prima persona con cui interagisce di più nella cooperativa è:

al massimo 1 scelta/e

- Donna
- Uomo
- Altro
- Non lo so

Qual è il titolo di studio della prima persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Scuola primaria, o nessun titolo
- Scuola secondaria inferiore
- Scuola professionale (2-3 anni)
- Scuola secondaria superiore
- Laurea triennale o diploma universitario
- Laurea magistrale o vecchio ordinamento/Master
- Post-laurea (specializzazione, dottorato)
- Non lo so

Qual è l'età (anche indicativa) della prima persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Meno di 20 anni
- Tra 20 e 30 anni
- Tra 30 anni e 40 anni
- Tra 40 e 50 anni
- Tra 50 e 60 anni
- Tra 60 e 70 anni
- Più di 70 anni
- Non lo so

Qual è l'occupazione della prima persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Professioni intellettuali, libere e scientifiche (es.: dottore - insegnante - ingegnere - artista – esperto
- contabile, commercialista)
- Direttore, funzioni dirigenti nell'amministrazione (es.: banchiere - direttore di grande azienda - consigliere
- di stato - dirigente sindacale)
- Settore impiegatizio (es.: segretario - impiegato d'ufficio - capo servizio - contabile)
- Settore vendite (es.: venditore - negoziante - commesso - assicuratore - rappresentante)
- Settore servizi (es.: ristoratore - agente di polizia - cameriere - portinaio - parrucchiere - militare
- sottoufficiale)
- Lavoratore specializzato (es.: capo cantiere - meccanico - tipografo - fabbricante attrezzi e stampi -
- elettricista)
- Lavoratore semi qualificato (es.: muratore - autista di autobus - operaio industria conserviera - carpentiere
- - lattoniere - panettiere)
- Lavoratore non qualificato (es.: operaio generico-facchino-operaio non qualificato)

- Lavoratore agricolo (es.: agricoltore - operaio agricolo - trattorista - pescatore)
- Senza occupazione
- Non lo so

Da quanto tempo, più o meno, fa parte della cooperativa la prima persona con cui Lei interagisce di più?

- *al massimo 1 scelta/e*
- Meno di un anno
- Tra 1 e 5 anni
- Tra 5 e 10 anni
- Più di 10 anni
- Non lo so

Quale ruolo ha nella cooperativa la prima persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Solo socio
- Socio e membro attivo del consiglio di amministrazione
- Socio e membro dello staff
- Non lo so

La seconda persona con cui interagisce di più nella cooperativa è:

al massimo 1 scelta/e

- Donna
- Uomo
- Altro
- Non lo so

Qual è il titolo di studio della seconda persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Scuola primaria, o nessun titolo
- Scuola secondaria inferiore
- Scuola professionale (2-3 anni)
- Scuola secondaria superiore
- Laurea triennale o diploma universitario
- Laurea magistrale o vecchio ordinamento/Master
- Post-laurea (specializzazione, dottorato)
- Non lo so

Qual è l'età (anche indicativa) della seconda persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Meno di 20 anni
- Tra 20 e 30 anni
- Tra 30 e 40 anni
- Tra 40 e 50 anni
- Tra 50 e 60 anni
- Tra 60 e 70 anni
- Più di 70 anni
- Non lo so

Qual è l'occupazione della seconda persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Professioni intellettuali, libere e scientifiche (es.: dottore - insegnante - ingegnere - artista – esperto
- contabile, commercialista)
- Direttore, funzioni dirigenti nell'amministrazione (es.: banchiere - direttore di grande azienda - consigliere
- di stato - dirigente sindacale)
- Settore impiegatizio (es.: segretario - impiegato d'ufficio - capo servizio - contabile)
- Settore vendite (es.: venditore - negoziante - commesso - assicuratore - rappresentante)

- Settore servizi (es.: ristoratore - agente di polizia - cameriere - portinaio - parrucchiere - militare
- sottoufficiale)
- Lavoratore specializzato (es.: capo cantiere - meccanico - tipografo - fabbricante attrezzi e stampi -
- elettricista)
- Lavoratore semi qualificato (es.: muratore - autista di autobus - operaio industria conserviera - carpentiere
- - lattoniere - panettiere)
- Lavoratore non qualificato (es.: operaio generico-facchino-operaio non qualificato)
- Lavoratore agricolo (es.: agricoltore - operaio agricolo - trattorista - pescatore)
- Senza occupazione
- Non lo so

Da quanto tempo, più o meno, fa parte della cooperativa la seconda persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Meno di un anno
- Tra 1 e 5 anni
- Tra 5 e 10 anni
- Più di 10 anni
- Non lo so

Quale ruolo nella cooperativa ha la seconda persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Solo socio
- Socio e membro attivo del consiglio di amministrazione
- Socio e membro dello staff
- Non lo so

La terza persona con cui interagisce di più nella cooperativa è:

al massimo 1 scelta/e

- Donna
- Uomo
- Altro
- Non lo so

Qual è il titolo di studio della terza persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Scuola primaria, o nessun titolo
- Scuola secondaria inferiore
- Scuola professionale (2-3 anni)
- Scuola secondaria superiore
- Laurea triennale o diploma universitario
- Laurea magistrale o vecchio ordinamento/Master
- Post-laurea (specializzazione, dottorato)
- Non lo so

Qual è l'età (anche indicativa) della terza persona con cui Lei interagisce di più?

- *al massimo 1 scelta/e*
- Meno di 20 anni
- Tra 20 e 30 anni

Tra 30 e 40 anni

- Tra 40 e 50 anni
- Tra 50 e 60 anni
- Tra 60 e 70 anni

- Più di 70 anni
- Non lo so

Qual è l'occupazione della terza persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Professioni intellettuali, libere e scientifiche (es.: dottore - insegnante - ingegnere - artista – esperto
- contabile, commercialista)
- Direttore, funzioni dirigenti nell'amministrazione (es.: banchiere - direttore di grande azienda - consigliere
- di stato - dirigente sindacale)
- Settore impiegatizio (es.: segretario - impiegato d'ufficio - capo servizio - contabile)
- Settore vendite (es.: venditore - negoziante - commesso - assicuratore - rappresentante)
- Settore servizi (es.: ristoratore - agente di polizia - cameriere - portinaio - parrucchiere - militare
- sottoufficiale)
- Lavoratore specializzato (es.: capo cantiere - meccanico - tipografo - fabbricante attrezzi e stampi -
- elettricista)
- Lavoratore semi qualificato (es.: muratore - autista di autobus - operaio industria conserviera - carpentiere
- \- lattoniere - panettiere)
- Lavoratore non qualificato (es.: operaio generico-facchino-operaio non qualificato)
- Lavoratore agricolo (es.: agricoltore - operaio agricolo - trattorista - pescatore)
- Senza occupazione
- Non lo so

Da quanto tempo, più o meno, fa parte della cooperativa la terza persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Meno di un anno
- Tra 1 e 5 anni
- Tra 5 e 10 anni
- Più di 10 anni
- Non lo so

Quale ruolo ha nella cooperativa la terza persona con cui Lei interagisce di più?

al massimo 1 scelta/e

- Solo socio
- Socio e membro attivo del consiglio di amministrazione
- Socio e membro dello staff
- Non lo so

La sua partecipazione alla cooperativa

Lei è socio/a attivo/a?

al massimo 1 scelta/e

- Sì
- No

Che cosa l'ha spinta a impegnarsi di più, diventando socio/a attivo/a?

Ci sono attività che Lei svolge regolarmente per la cooperativa?

al massimo 6 scelta/e

- Leggere le e-mail e le newsletter
- Partecipare ai seminari o agli eventi
- Partecipare all'assemblea generale
- Fare del volontariato per la cooperativa
- Promuovere la cooperativa (ad es. Distribuire materiale pubblicitario, contattare nuovi potenziali membri,
- etc.)

- Assumere delle attività di direzione
- Nessuna attività
- Altro

Può precisare:

Che cosa mi ha portato la cooperativa...

Su una scala da 1 (per niente d'accordo) a 5 (del tutto d'accordo), può dire quanto è d'accordo con le seguenti affermazioni?

- Partecipare alla cooperativa mi dà più legittimità nel parlare delle problematiche energetiche con i miei amici o la mia famiglia.
- Partecipare alla cooperativa mi ha permesso di sviluppare delle competenze tecniche sul funzionamento dell'energia.

Su una scala da 1 (per niente d'accordo) a 5 (del tutto d'accordo), può dire quanto è d'accordo con le seguenti affermazioni? Se faceva queste attività anche prima di entrare nella cooperativa, scelga l'opzione "Lo facevo già"

- Da quando partecipo alla cooperativa, sono io a gestire le fatture di elettricità a casa mia.
- Da quando partecipo alla cooperativa, ho meno timore di prendere la parola in pubblico.
- Da quando partecipo alla cooperativa, penso che sarei capace di fare qualcosa per l'ambiente al mio livello, per esempio nel paese o nella città dove vivo.
- Da quando partecipo alla cooperativa, gestisco meglio i consumi di casa mia, per esempio gli elettrodomestici o la luce.

Le donne nel mondo dell'energia...

Su una scala da 1 (per niente d'accordo) a 5 (del tutto d'accordo), può dire quanto è d'accordo con le seguenti affermazioni?

- Da quando partecipo alla cooperativa, mi sono reso/a conto che le donne sono tanto in grado quanto gli uomini di occuparsi di temi tecnici come l'energia.
- Da quando partecipo alla cooperativa, penso che avrei potuto svolgere un lavoro tecnico nel settore dell'energia.
- Da quando partecipo alla cooperativa, mi sono reso/a conto che le donne sono tanto legittimate quanto gli
  uomini su temi come la politica o l'economia.
- Da quando la presidente della cooperativa è stata eletta, mi sono reso/a conto che le donne possono giocare un grande ruolo nella transizione energetica.
- Da quando la presidente della cooperativa è stata eletta, penso che le donne potrebbero assumere dei posti di responsabilità in un settore come quello dell'energia.
- Avere una donna presidente mi ha dato più di fiducia nel partecipare alla cooperativa.

Come donna Lei potrebbe dirmi che cosa le ha portato il fatto di partecipare ad un cooperativa energetica?

Per finire...

Lei è...?

- Socio/a e membro attivo del consiglio di amministrazione
- Socio/a e membro dello staff
- Solo socio/a

Qual è la Sua occupazione? Se è in pensione precisare l'ultima occupazione svolta
- Professioni intellettuali, libere e scientifiche (es.: dottore - insegnante - ingegnere - artista – esperto
- contabile, commercialista)
- Direttore, funzioni dirigenti nell'amministrazione (es.: banchiere - direttore di grande azienda - consigliere
- di stato - dirigente sindacale)
- Settore impiegatizio (es.: segretario - impiegato d'ufficio - capo servizio - contabile)
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- sottoufficiale)
- Lavoratore specializzato (es.: capo cantiere - meccanico - tipografo - fabbricante attrezzi e stampi -
- elettricista)
- Lavoratore semi qualificato (es.: muratore - autista di autobus - operaio industria conserviera - carpentiere
- - lattoniere - panettiere)
- Lavoratore non qualificato (es.: operaio generico-facchino-operaio non qualificato)
- Lavoratore agricolo (es.: agricoltore - operaio agricolo - trattorista - pescatore)
- Senza occupazione

Qual è il Suo titolo di studio?

Scuola primaria, o nessun titolo
- Scuola secondaria inferiore
- Scuola professionale (2-3 anni)
- Scuola secondaria superiore
- Laurea triennale o diploma universitario
- Laurea magistrale o vecchio ordinamento/Master
- Post-laurea (specializzazione, dottorato)

In quale ambito ha studiato?
- Scienze umane (Lettere, Lingue, Sociologia, Psicologia, Storia, etc.)
- Scientifico (Matematica, Fisica, Chimica, Biologia, Medicina, Agronomia, etc.)
- Arte (Conservatorio, Accademia di belle arti, etc.)
- Tecnico (Ingegneria, Architettura)

Può precisare?
- Istituto professionale statale per i servizi alberghieri e la ristorazione (I.P.S.S.A.R.)
- Istituto professionale per produzione industriale e artigianale
- Istituto professionale per il commercio
- Altro

Nel corso dei Suoi studi, ha approfondito in particolare le problematiche dell'energia?
- Sì
- Un po'
- No

Descriverebbe il posto in cui Lei vive come…
- ... una grande città
- ... un centro suburbano, o nelle vicinanze di una grande città
- ... una città media, o una cittadina
- ... un paese/un piccolo borgo
- ... una casa isolata in campagna, o una fattoria

Può dirmi per favore, più o meno, quanto ha investito nella cooperativa?
- 50€ o meno di 50€
- Tra 51€ e 100€

- Tra 101€ e 500€
- Tra 501€ e 1000€
- Tra 1001€ e 2000€
- Tra 2001€ e 5000€
- Più di 5000€
- Preferisco non rispondere

Le faremo una domanda sul reddito. Se lei trova la domanda troppo personale non è obbligato a rispondere.

Nella tabella seguente, ciascuna delle lettere in questa tabella corrisponde al reddito complessivo della famiglia in cui Lei vive, al netto delle tasse. Può scegliere la colonna della tabella che preferisce, riferendosi al reddito mensile, settimanale, o annuale della Sua famiglia (compresa Lei stessa). Faccia per favore un cerchio intorno alla lettera che corrisponde grosso modo al reddito netto della Sua famiglia di allora. Se non conosce la somma esatta, è sufficiente fare una stima.

al massimo 1 scelta/e

- J
- R
- C
- M
- F
- S
- K
- P
- D
- H
- No lo so
- Preferisco no rispondere