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Energy citizenship
for a sustainable future

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List of Abbreviations

Abbreviation	Concept	Abbreviation	Concept
CAI	Collective Action Initiatives	NIMBY	Not In My Backyard
CEC	Citizen Energy Community	PA	Paris Agreement
CEP	Clean Energy for all Europeans	PNRR	National Recovery and Resilience Plan
EEG	Renewable Energy Act	PtG	Power-to-gas
EU	European Union	PV	Photovoltaic
FFF	Fridays for Future	REC	Renewable Energy Community
GHG	Greenhouse Gases	RED II	Renewable Energy Directive
IEMD	Internal Energy Market Directive	RES	Renewable Energy Systems
LNG	Liquid Natural Gas	SGS	Solar Energy Self-Generating System
NGO	Non Govermental Organisation	UNFCCC	United Nations Framework for Climate Change

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1. Executive Summary

The current energy crisis in the aftermath of Russia's attack on Ukraine highlights as no other event how each and every individual in the European Union (EU) is affected by energy issues—and how energy is a key to all other economic activities. The high degree of fossil fuel dependency from a single country reveals how vulnerable Europe is—or has become. Given the disastrous impacts of climate change, a shift to clean and affordable energy is a necessity. In retrospect, countries have to painfully realize that this shift should have been taking place much earlier. Today, given the severity of impacts such as price shocks, the European energy system—together with the concept of energy citizenship—can be said to stand at a crossroads. High energy prices may lead to a faster roll-out of renewables, but they can also—given the speed of the crisis—lead to old or new carbon lock-ins, such as a renaissance of coal or the new Liquid Natural Gas (LNG) infrastructure. Being confronted with extreme price increases and energy scarcity, decisions-makers and citizens might on the one hand unite behind a reinforced EU clean energy strategy, but they could also opt for an arrangement with Russia in order to get back the 'good old' energy system and its energy prices.

Against this background, it is even more important for the DIALOGUES project to support the Energy Union with operational research on energy citizenship that enables citizens to take a central role in the energy transition. To achieve this objective the project will conceptualise, operationalise, contextualise, measure, and support the framework environments, policies and institutions that allow deep, inclusive energy citizenship to emerge. The key focus of DIALOGUES is on co-creating energy citizenship innovations that include the perspectives of groups currently on the margins of the energy transition such as women, low-income households, energy poor, ethnic minorities, but also sizeable parts of the middle class. As will be shown in this paper, this task not only implies for existing citizen organizations in the energy field to be more inclusive but also for the institutional design of energy and climate policies in general to be reworked in order to improve energy and climate justice issues.

Defining energy citizenship is a cornerstone of the DIALOGUES project and a continuous assignment throughout the project. The energy citizenship concept in DIALOGUES is yet evolving along with new research, knowledge exchange and with multi-stakeholder expertise gathered throughout the project. The design, implementation and evaluation of

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Citizen Action Labs throughout Europe will help the DIALOGUES project to validate and enrich its findings through knowledge and insights gained in an experimental setting.

This research paper T3.2 aims to i) contribute to the on-going conceptualization and operationalization of energy citizenship building on the results of T2.2 "Bibliographic analysis of Energy Citizenship" and T2.3 "Operational and Inclusive Energy Citizenship" and ii) analyse relevant data on the operationalization of energy ownership, participation, and conflict; and iii) connect theory to the findings with the expert interviews of relevant stakeholders around Europe previously done in the DIALOGUES project in task 5.2 "Expert Interviews".

Task 2.1 "Research Whitepaper" of DIALOGUES defined that energy citizenship can be reached with distinct roles, through different pathways, and expressed in distinct forms. These differences in pathways and expressions of energy citizenship are related to individual and contextual aspects such as social, political, and material conditions (Biresselioglu et al., 2021a). The Energy Citizenship Pathways that T2.1 together with the research consortium of the DIALOGUES project agreed upon are the individual, collective and institutional pathways (Biresselioglu et al., 2021a)

This pathway approach allows different layers of analysis of the conceptualization of energy citizenship. It also allows the study of the interactions between this three-pathway dimension. How they interact with each other will allow a clearer understanding of energy citizenship.

The first possible route towards energy citizenship is through the individual pathway (Chapter 3.1). Here is required to look into what motivates individuals' personal decisions and motives them to be active in the energy sector. The collective pathway (Chapter 3.2) focusses on studying how citizens can coordinate their actions (e.g. by founding cooperatives or other civil society organizations) in order to influence the market, policies, other individuals, and institutions (Biresselioglu et al., 2021b). The institutional pathway (Chapter 3.3) is reached through the rules and norms that coin the production, access to and use of energy, thus specifying how an individual or a collective of citizens actors can influence energy-related decisions, such as information, laws, or transfers (Moss et al. 2015). These three pathways to energy citizenship are not mutually exclusive, citizens and roles can deepen energy citizenship by proceeding on more than one pathway at the same time.

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Defining energy citizenship while connecting the conceptualisation to the objectives of the Energy Union and the objectives of the DIALOGUES project will support the construction of a more inclusive, participatory, and accurate concept of what energy citizenship ought to be. A concept where citizens become the centre of energy transitions and in mainly citizen-driven energy sector. However, this developing concept of energy citizenship finds itself in contrast with the dynamics of the present energy sector dominated by a few powerful economic and political players.

This research analyses these differences by exploring ownership, participation, and conflict dimensions. Taken together, these three dimensions, chosen for their relevance and measurability for energy citizenship, can cover important aspects of energy governance in Europe—with a particular focus on improving energy citizenship. In this paper, we want to elaborate and, if possible, also quantify these three aspects of energy citizenship. Despite the fact that energy cooperatives for example do play a growing role in the energy transformation of many European countries, the majority of Europeans are still participating in the energy transition only in their roles as energy consumers – with more or less strong attitudes towards its goals and policy instruments. The DIALOGUES project is driven by the conviction that a stringent and timely energy transition does need more citizen engagement – it needs many more people that take one or another energy citizen pathway.

A report for the EU estimates that 83% of the EU´s households could potentially become energy citizens in more roles than merely consumers and half of the population of the EU could produce their electricity by 2050 (Kampman, 2016) with multiple social and economic benefits to the local communities and their citizens (Helgenberger and Jänicke, 2017; Markkanen and Anger-Kraavi, 2019).

The share of renewable energies' gross final consumption more than doubled between 2004 and 2020 in the EU, increasing from 9.6 % in 2004 to 22.1% of gross final consumption in 2020 (European Commission. Eurostat, 2022), achieving the EU target of 20% by 2020. The target for 2030 is 32% of renewables. Likewise, citizen participation in roles beyond consumers has increased dramatically in the last 20 years. In Germany 1.5 million citizens generate their energy, making it Europe´s 14th largest energy retailer (Bertram et al., 2018). However, most citizens participate mostly exclusively as consumers in only limited roles in the energy sector, which are highly dependent on economic position, gender, education, country of residence, etc (Pearl-Martinez, 2014).

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Data on ownership and participation in energy projects show that few citizens participate in the energy sector in any other role but consumers (see Chapter 5). Even though citizen participation is increasing and citizen involvement is now greater than ever (European Environment Agency, 2022), there is still a long way to go towards a truly citizen-driven energy transition.

Conflict alleviation (or intensification) when scaling up renewable energy is closely related to concerns of ownership and participation in renewable development. Studying and finding solutions for a citizen-driven energy sector will have an impact on reducing those frictions and conflicts that slowdown or speed up energy transitions.

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2. Building the Energy Citizenship concept

One of the main objectives of the DIALOGUES project is a working definition of energy citizenship. An early definition was: It is "the degree to which, and the ways in which, the goals of a sustainable energy transition enter into the everyday practises of an individual" (Biresselioglu et al., 2021a, p. 46). This concept will evolve throughout the project and the current paper can be regarded as a further attempt in this direction. The initial definition highlights that a sustainable energy transition is nothing that happens somewhere in Brussels or at the level of the big energy providers, but a socio-technical process that affects everyone. The energy citizenship concept spells out what energy transformation means for the individual citizen and for society as a whole. Hence, it is meant to underline the many ways in which individuals, groups and organisations are a vital part of the clean energy transition together with the policies of the EU and national governments and the role of the big energy providers.

The concept of energy citizenship needs to be flexible for many reasons. One of the reasons of particular interest for this paper is the fact that there is no such thing as 'the' energy transition. While it is clear that by this term, we refer to a clean energy system without fossil fuels, it is not fully agreed upon among European member states what 'clean' means in technological terms: only renewables, or also nuclear? It is also not pre-defined what ownership structure and what 'size' a future European clean energy system should have—more centralised, more decentralised, or a mix of both? Existing energy systems have been growing for decades. Sovacool convincingly argues that for that reason also energy transitions are "path dependent and cumulative" of different contexts that determine the processes of change and adaptation of the energy policy mix (Sovacool, 2016), such as politico-economic constellations, established infrastructures and technological settings.

Renewable energy technologies require their own type of policy support through their different stages of development (Grubb, 2014). The public policy instruments required will depend on the context of the environment, the maturity of the technology in that environment, financial capabilities, technical capabilities, and the social context (Marques and Fuinhas, 2012). Similar to the concept of energy transitions, both are not static dynamics, but evolve over time, changing due to internal and external factors (Biresselioglu et al., 2021b). A single policy instrument or a linear fixed solution would not be sufficient to achieve an energy transition (Gawel and Lehmann, 2019; Lehmann

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and Gawel, 2013; Rogge and Reichardt, 2016). Finally, it is also open to what means (policy instruments) and in which participative settings the clean energy system will be brought about, and what respective roles governments, companies, and citizens will have to play. As opposed to seeing energy transitions as an end, energy transition is conceived as a system transformation (Cochran et al., 2014; Hake et al., 2015; International Energy Agency, 2014). This openness and multiplicity of possible configurations of a clean energy system drive us to think of energy citizenship as a flexible, open, and evolving concept. Energy citizenship comprises a reconfiguration of social roles with respect to socio-technical energy regimes according to new goals and norms. Energy citizens claim and/or practice new modes and means of producing, distributing and consuming energy according to their individual and collective goals and capabilities. Energy citizenship can be triggered by windows of opportunity provided by technological developments, such as the decentralization and low-carbon potential of renewables, but also by new forms of ownership or policy tools. This reconfiguration of social roles can and usually is intended to translate into socio-technical transformations (e.g., laws, market structures) by using various channels of social resonance (cf. Figure 1).
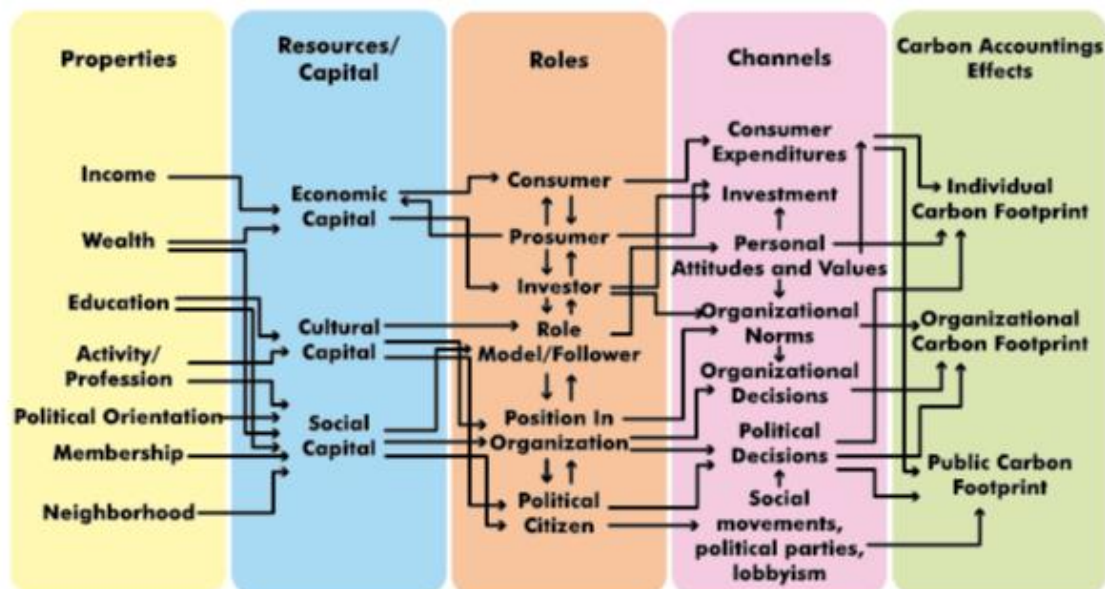

Figure 1: Resources, Roles, Channels and Carbon Accounting Effects of Energy Citizenship (PIK Adaptation to (Nielsen et al., 2021))

The first step in conceiving energy citizenship is to become aware of the many properties or characteristics of citizens that enable and restrict them, leading to different capabilities that can be bundled in three forms of resources or 'capital', as conceptualized by the Sociologist (Bourdieu, 2011). When it comes to ownership in a literal sense, for example, economic capital that may stem from income or wealth plays an important role. But educational and/or professional backgrounds, translating into cultural capital (or the lack of it), enable citizens to understand certain issues (e.g., climate change) or to express themselves adequately in complex social situations. Social capital may stem from various characteristics or properties of citizens, such as memberships, neighbourhood relations or professional networks. It is a well-established fact that even or especially weak ties do have their strengths when it comes to facilitating network building (Granovetter, 1973). Social capital is an attribute of individuals that helps them solve collective action problems (Ostrom and Ahn, 2009).

People can play different roles as energy citizens, and this point is particularly relevant with respect to the multitude of ways by which individuals of different backgrounds and in different countries of the EU can become part of the clean energy transition. Lenon et al. analysed the role of the consumer through the lens of energy citizenship and also highlighted how more research is needed to explore more roles for energy citizens to play (Lennon et al., 2020). Energy consumer is the most fundamental role of energy citizenship; we all are energy consumers although we have different degrees of playing the consumer role. Citizens can play this role in very different ways: e.g., as passive price takers that show little interest in what is behind their sockets or gasoline pumps. Other energy consumers are more critical, actively seeking green energy providers, even accepting higher prices for better environmental quality. People can also become investors in the energy system. It is clear that this role depends on available economic capital, but there are wealthy individuals that do not care for clean energy, while others—even with lower shares—buy into investment funds for renewables or invest in their own homes (prosumer).

Individuals can also act in a collective way and, for instance, become members of renewable energy co-operatives. In the DIALOGUES Citizen Action Lab to be conducted in Berlin, such an energy co-operative will be studied in more detail. Collective action does also comprise the role of the political citizen (Cf. Chapter 3.2). The EU member states are all representative democracies, and citizens do regularly vote—also on energy and climate policies—or can engage in public forms of engagement, e.g.,

demonstrations. Not all citizens support the idea of a clean energy transition. At a local level we see a lot of opposition against renewable energy projects, such as wind farms. This underlines that conflict needs to be an integral perspective on energy transitions.

Energy citizens can be enabled in different roles through individual and collective actions that can impact the energy system, an impact that can eventually lead to an institutional transformation. Like in energy transitions, institutions are both a medium and a product of the transition (Moss et al., 2015). Institutions can also impact energy citizens in a similar way that individual and collective actions can create an impact and shape institutions either by democratic and consensual means such as voting, by electing for example a "green" party with a greener policy agenda. Institutions can also act as more participatory entities in the energy sector and can also act as a channel to empower citizens in different roles. An example of this is the participation of local governments in energy cooperatives, which together with other citizens make it possible to implement larger-scale renewable projects such as the recent developments of off-shore wind community projects in Denmark (Olsen, 2018).

As the conceptualisation of energy citizenship progresses, the active involvement and democratic engagement of individuals and communities within the energy systems enter into the picture**.** In this dynamic, citizens are understood as active rather than passive owners of rights and duties. Citizenship is framed as a process, rather than a given and fixed state of engagement with the energy system (Biresselioglu et al., 2021b). Therefore, instead of researching the static core elements that express energy citizenship, we would like to enlighten the methods by which energy citizenship is concretely voiced and enacted. The literature review (Biresselioglu et al., 2021a) looked for common ground for conceptualising energy citizenship as a process of pathways for citizen engagement, going beyond individual consumption to collective action, institutional influence, and the significance of power dynamics among these social levels.

The roles that citizens play in the energy sector will depend on multiple conditioning factors in the energy environment. A technical instance is the existing legal framework that defines to a large extent the roles that a citizen may have. legal regulations determine whether and how a citizen can participate in the production of their energy individually or by participating in collective organizations such as energy cooperatives. In addition to the legal framework, there are other factors that influence the roles that a citizen may have in the energy sector, which have to do with opinion, emotions, priorities,

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and motivations. They take the form of their political stance, gender, socioeconomic level, knowledge, and access to the legal framework and the energy transition in general. These factors are subject to change through inherent attributes of the individual, the collective and their institutional environment.

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3. Pathways of Energy Citizenship

Climate change is a problem that requires a multi-scale response from the individual to the global. Each level and type of entity has some capacity to influence climate change action and policy, but as a multi-level collective action problem, it is not surprising that there is underprovision of climate change action; this challenge highlights the need to better understand decision-making processes. (York et al., 2021) propose an integrated research endeavour that examines inter-level feedback processes, the role of individuals and organizations in promoting trust within and across levels, the importance of establishing and communicating norms, and the inclusion of worldviews to situate decision-makers within narratives of climate change. Following that line of thought, we would like to highlight the multiple pathways to energy citizenship at various levels, individual, collective, and Institutional.

Individuals can achieve energy citizenship through different pathways and can express their citizenship in various ways (Biresselioglu et al., 2021b). These differences in pathways and expressions of energy citizenship are related to the capital endowments of the individuals, also referred to as contextual aspects such as social, political, and material conditions (Carrus et al., 2022).

If we acknowledge that the concept of energy citizenship is complex, multi-faceted, and flexible both in its concrete targets and designs, we can see that there are also multiple ways of becoming an energy citizen and performing this role (Biresselioglu et al., 2021b, 2021a). Given the different capital endowments and roles that individuals can play, three major pathways emerge, the individual, the collective, and the institutional one. The intuitive understanding of the pathway metaphor highlights this multitude of ways of reaching energy citizenship (Biresselioglu et al., 2021b; Carrus et al., 2022). In a more technical sense, pathways describe consistent sets of decisions, actions, roles, and enabling socio-technological settings by which individuals typically can get actively involved in the shaping of energy systems. Pathways must be explicit about the routes, and they can be explicit about the time sequence of these sets, also indicating at what point a particular route may come to an end or may no longer be achievable for individuals or communities, or can be left for another one, as has been demonstrated in the case of pathways to adaptation to climate change (Berrang-Ford et al., 2021).

One of the implicit purposes of energy citizenship in the DIALOGUES project is to enable the largest possible number of roles in the energy sector for the largest possible number

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of citizens. That is, to enable any individual in as many roles as possible regardless of their economic position, gender, migration background, or knowledge of the sector. Studying the pathways to reach energy citizenship and the interaction between these pathways will support the inclusion of more citizens in the energy sector. Individuals could be energy citizens i) in different ways, ii) through different pathways, and iii) to different extents (Carrus et al., 2022).

Energy citizenship is a dynamic concept where citizens can change and evolve their energy citizenship. The degree of involvement can be expressed in different levels of awareness, endorsement of energy citizenship values, engagement, emotional involvement, perceptions and attitudes, social norms, identity, intentions, and behaviours in the context of energy systems and energy-related issues (Carrus et al., 2022). The roles that are enabled and restricted will depend on the pathway through which the different roles are enacted.

1.   Individual pathway of Energy Citizenship

The individual pathway for reaching energy citizenship has been initially approached in Task 2.3 "Operational and inclusive energy citizenship" of DIALOGUES and it involves the behaviours and engagement of citizens. individuals can cooperate dynamically and synergistically (or not) with institutions, policymakers, administrative authorities, and each other at local, regional, national, and international levels to pursue sustainable energy transition goals (Carrus et al., 2022). Energy citizenship does not consider citizens merely in their role as consumers, but as agents having their rights and their duties living in different socio-political and geographic contexts with their differences and preferences (Carrus et al., 2022). As individual agents, citizens have cognitive processes, emotions (e.g., joy, anger, pride, concern, etc), beliefs, intentions and all those behavioural aspects that include the daily habits (e.g., energy efficiency when turning off the lights or by requiring smart devices), and other social psychological factors such as values, social norms, and identity.

Citizens can reduce or increase their GHG emissions and adjust their energy consumption behaviours, they can make daily choices about using public transport, cycling, or driving their car. They can also choose which products to consume and from which companies to purchase products and services. In some countries, citizens can choose their electricity supplier and even between a green or conventional tariff. Consumption behaviours are the simplest example of reaching energy citizenship

through the individual pathway (Cf. Figure 1). But also, individual actions that directly or indirectly impact the energy sector are an exercise of energy citizenship, such as influencing family and friends to save energy (or consume more), producing energy, participating in social media and other public discourses in direct actions like demonstrations, acts of civil disobedience, etc. for or against cleaner energy.

The reasons for exercising energy citizenship individually are varied and widely discussed. It can be seen from the social choice theory or discounted utilitarianism point of view that the individual aims to maximise their benefit, be it economic, convenience, or happiness. But it is also well-known that individual actions are influenced by the social nuclei in which one cares. At the individual level, citizens can take individual costly actions that take the interests of others into account (Ostrom, 2007). These considerations may be driven by family, neighbours, friends and/or a larger social nucleus. The motives for engaging individually in global issues and their altruistic quality still remain a debated question. This is especially more prominent considering the premise that everyone benefits from reduced GHG emissions.

Individuals can exercise energy citizenship in a prosumer role when deciding to invest and acquire a RES either for their own energy consumption or to sell it on the grid. It also depends on their social capital whether they can exert less or more influence on their surroundings and outreach by being a role model. Citizens are constantly influenced by other individuals or collectives, can be a famous politician, a singer, a friend, or any influential person that could be a role model. Individually, citizens will always have role models and that place citizens also into the role of followers. Citizens adopt consumption behaviours and attitudes towards issues related to energy and climate change.

2.   Collective pathway of Energy Citizenship

Individual actions of citizens in a coordinated collective can have a different impact on the lives of others, on the community in which they live, and on public policies and institutions. These collective actions, their impacts, and the reasons behind acting collectively have been recently studied in the context of the climate crisis in movements such as Fridays for a Future (FFF) or in the collective effort to decarbonise countries or to shut down nuclear power plants (Cologna et al., 2021; Wallis and Loy, 2021). While climate activism and energy citizenship are clearly two different issues, they are sufficiently close to seeking inspiration from the study of the former for the understanding of the latter.

Collective action is seen in several forms of social life: from communities, cooperatives, collectives, and groups, to teams, clans, tribes, villages, and neighbourhoods. Collective action represents the backbone of social life. Any action by a member of the social body is wrapped in bundles of collective action, which involve agents and agencies of different natures.

Collective action is a perennial problem for social and philosophical sciences. Hobbes, the founder of the modern political theory argues in the *Leviathan* that man as a rational egoist must enter a social contract as a rational way to escape a "state of nature" characterized by continuous threats and conflicts (Bredekamp, 2006). Spinoza argues that the rational individual is someone who realizes that his or her nature cannot be fulfilled except in society, an awareness that leads individuals to cooperate with others on a rational basis. From such a perspective, collective action can be seen as the solution that humans embrace to cope with problems that are unsolvable as individuals (Rosenthal, 1998). However, modern social theory on collective action is much more sceptical about its feasibility. If, as suggested by Olson, individuals will only choose to join a group effort if the private benefits offered to exceed the costs of their personal commitment, the free-rider strategy remains the most likely one for people, and collective action is rendered to the status of a rather marginal, low-probability solution (Olson, 2012).

More recently, social theorists from a broad range of disciplines, encompassing empirical studies as well as game theory approaches, have come to a much more nuanced view. We find collective action to be much more common as a narrowly defined rational actor paradigm suggests, and we find it especially when the management of common pool resources is at stake. Ostrom has shown how in different societies collective management of common pool resources such as fisheries, forests, and water bodies are successfully installed, offering an alternative to the two alternative ways of institutionalizing resource use, namely private property, or state control (Ostrom, 1990). Her conclusion: "A key lesson of research on collective action theory is recognizing the complex linkages among variables at multiple levels that together affect individual reputations, trust, and reciprocity as these, in turn, affect levels of cooperation and joint benefits" (Ostrom, 2010a).

Reputation, trust, and reciprocity need to be taken into account when we study collective action phenomena. "Collective action is joint action in pursuit of common ends" (Tilly, 1977, p. 84). In his assessment of collective political action, Tilly identifies four main

components of collective action: (1) *organization*, i.e. the ways in which individuals co-operate, (2) *mobilization*, i.e. the ways in which action resources (e.g. money, time, political support, knowledge) can be made available, (3) *common interests*, i.e. shared needs, wants and interpretations that people become aware of, and (4) *opportunity*, i.e. external conditions and regulatory frameworks, but also windows of opportunity provided by specific events. (Gregg et al., 2020) have applied this framework successfully in describing the emergence of collective action initiatives (CAI) in the energy sector.

CAI and the reasons why individuals cooperate can be analysed from different disciplines, such as sociology, psychology, and political economy. In order to analyse CAI within environmental and climate change issues it is important to identify the motives and reasons for the movements. As there are different theories of collective action that consider different influences for a movement to succeed and depend only on various or different factors such as group affinities (wealth or demographics), the availability of resources, the skills of individuals, the connection to policy, trust to other participants, institutionalities and it extends to many more externalities (Klandermans, 1984; Meyer and Minkoff, 2004; Pinard, 1968; Shields and Armstrong, 2018).

The energy citizenship role attached to activism in the context of the ecological and climate crisis presents a complex challenge to collective action and rational choice theories. Climate impacts affect people and regions in different ways depending on their geographic location and their capacities to adapt while the concentration of greenhouse gases (GHG) in the atmosphere is a global phenomenon. The people most harmed by the impacts of climate change may not have adequate representation heard and power to receive adequate compensation for loss and damages and more in general climate justice and for rendering the efforts of rich nations to cut down emissions compliant with the Paris Agreement (PA) (Ostrom, 2010b).

One must start from the premise that everyone benefits from reducing GHG, regardless of whether they participate in achieving it. The knowledge and weight that each individual will give to these benefits will correspond to the way they act individually and collectively (e.g., by joining a protest, or investing in a cooperative). Whether it is the beneficial health outcomes, the economic benefit of saving energy, the social recognition of participating, or the simple fact of thinking about a better future for all.

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Solving a problem together to provide a common good is a classic dilemma of collective action. Classical theory assumes that no one will change their behaviour, e.g. reduce their emissions or their energy use, unless some external authority imposes rules that reinforce these actions and behaviours (Ostrom, 2010b). Conventional collective action theory provides us with the concept of self-organised groups that plan their own goals and policies to achieve a common good or regulate a resource from a common pool. They typically succeed in developing such solutions to small and medium-scale problems in environmental and climate change issues (Ostrom, 2010b). In the case of environmental issues, contrary to traditional collective theory, many of the small and medium-scale collectives do cooperate effectively, for example in Forest Management or Youth Climate activism (Poteete et al., 2010; Poteete and Ostrom, 2004).

The political opportunity theory presented by Meyer et al. connects collective actions such as protests and movements for change to existing political institutions or alternatively to specific policies set by the same institutions (Meyer and Minkoff, 2004). From the psychological perspective, collective actions are connected to individual action by adding the component of achieving the goals of reaching an individual's desired better-off in a collective way. In the deprivation theory, Individuals compare their current situation with an aspired improved situation (Morrison, 1971). When this aspiration is desired by other individuals as well, collective action can happen. Desired situations such as less pollution or better bicycle infrastructure are specific examples of better-off stances. However, it is also seen that individuals have beliefs that go beyond a personal desire and are driven by a "larger cause". This is addressed by collective identity theory, where collective identity is based on the cognitive, moral, and emotional parts of a group of individuals (Davis et al., 2019). Groups that share the same values and beliefs, and where self-interest is not the only or not even the main factor in achieving a collective movement.

The collective pathway to achieving energy citizenship involves the roles that the coordinated effort of individuals in most cases more incisive than an individual effort would be able to achieve. The roles enabled by the collective pathway can enable a greater number of citizens as energy citizens. In our society, some voices are more heard than others and there are also individuals who may be more vulnerable than others by exposing themselves to different roles such as climate activists (Bourdieu, 2011). Collective energy citizenship roles allow people who would have a problem to act individually to do it so together with others. Partaking the benefits and protections that collectives have

compared to individual participation, e.g., In climate activism (Blackwood and Louis, 2012; Hornsey et al., 2006).

There are also limitations to what role a single individual or household can play in the energy sector considering for example the economic capacity of each individual or household. Any person could theoretically invest in a solar energy self-generation system (SGS), but few people or households have the economic capacity to do so or have the physical space to install an SGS. The collective pathway of energy citizenship enables different collective schemes that allow individuals to join their efforts, such as energy cooperatives, energy communities, associations for and against renewables, or other collective ownership structures. There are limitations to the individual pathway that can be overcome by collective action such as technical capabilities, time effort, knowledge, and socio-economic limits.

Allowing more individuals to take on roles beyond being consumers do, however, not necessarily mean that the collective roles are more inclusive. Inclusiveness depends on the composition and rules of participation in each of the collectives. Collective organizations tend to address local causes, investments, conflicts and/or solutions. This context already tends to generate homogeneity among the citizens who participate. This tends to be less the case in more global causes such as climate change activism or in more cosmopolitan and diverse communities and cities.

Collective roles are also often accompanied by rules of entry and membership acceptance. Energy cooperatives commonly have an entry fee, i.e., minimum financial contribution and minimum requirements of participation like voting or attending annual meetings (Brummer, 2018). The tighter the entry requirements, the less the inclusion of low-income citizens. But other demographics exclusions may exist such as entry age rules or exclusivity with membership (Walker and Devine-Wright, 2008). The same can happen if there are rules for participation such as residency or proximity. There are also other limitations that are not exclusive to the rules of membership but affect the attraction of new members. Invitation to become a member can be by exclusive or non-exclusive invitation by existing members. If members tend to be from a specific socio-economic demographic stratum, there is a tendency to invite people from the same stratum. Thus, making the collective groups less inclusive and even locking in or rapidly reducing energy-driven solutions (Nielsen et al., 2021; Wierling et al., 2018).

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Energy citizenship is acquired by both supporting and opposing renewable energy, not considering roles that are against renewable energy would mean ignoring the impact that citizens in those roles can have. Measuring the degree of energy citizenship an individual has is not intended to be a normative exercise but rather an exercise in exploring the different roles a citizen can access and how those roles can be enabled.

Politicians and governmental institutions representatives can serve as local opinion leaders for and against energy systems developments (Cohen et al., 2021), but the same can apply to citizens that are recognized or popular within the community (e.g. professors, and local entrepreneurs). Furthermore, the support from different local, regional, and national community leaders can influence positively or negatively depending on the configuration of the community and the perception of the institution or individual. In Italy, the support of national and EU politicians had a positive impact on the acceptance of renewables, meanwhile in Switzerland, only the positive acceptance was shifted by local politicians.[1] EU citizens can perceive themselves as local, national, and European at the same time, but each community might react differently to the composition of collectives.

3. Institutional pathway of Energy Citizenship

Collectives as central agents of change can lead to the creation of institutional cohesions that ultimately create and modify the rules of the "game" for participation. Institutional and legal frameworks may favour citizen participation in different roles. Citizens can access different roles when institutions allow or demand it. This is especially true for instruments of citizen participation, surveillance and/or consultation. Citizens can take more active roles as observers, organisers, justice providers, and other roles. While citizens can be empowered in different roles according to changes in their economic, social, and cultural capital, there are more elementary (institutional) constraints that go beyond the willingness of the individual or collectives to act and play certain roles. The legal and regulatory frameworks established at either the organisational or political level will define the possibility (or impossibility) for citizens to play a role (or not) as energy citizens. The most fundamental case for employing the institutional pathway and citizen participation is through the right of voting. Citizens' ballots define the political future of their communities and have an impact on the climate and energy future of the country according to the political agendas of political parties (Kinsella, 2004).

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[1] For Germany and Austria no clear difference was found

The institutional route to energetic citizenship considers the roles of citizen participation in exercising the vote either directly or electing representatives to take charge of decisions. Representatives have a deeper and more impactful role in decision-making. However, the role of the voter does not stop there, and as in democratic political theory, the individual as a citizen can also influence decision-making through other roles (Topf, 1995). Citizens can mobilize and protest for (or against) those decisions that they believe are meaningful. Either through the individual pathway by using their individual capital to influence decision-making through either direct voting or representatives or through the collective pathway by participating in citizens' movements or lobbying for example.

One of the most common instruments for conflict resolution and for developing projects is the use of citizen surveys to decide upon its acceptance before developing it (Watson et al., 1991). Citizens are called to vote to decide if a new development starts. The main characteristic of these polls is that only the citizens of the community (understood as a population, group of populations or a region) can vote and make a joint decision. The rules on who can participate can shift the final decision. In the NIMBY experiences, as the name implies, it has been seen that many citizens against voting against a renewable development close to their residence are actually in favour of the development of renewables overall (Reusswig et al., 2021; Teune et al., 2021) The main problem lies in the proximity of their homes to the energy projects, and some citizens do not want the wind turbines to be so close to their residences. The same applies to the different regulations to form energy communities, regulations to install RES, regulations to connect to the electricity system, and other regulations and laws that allow or limit citizen actions.

Although the EU has just made a major effort to boost citizen participation through the Clean Energy for all Europeans Package (CEP), the Internal Energy Market Directive (IEMD) and the Renewable Energy Directive (RED II) (EU, 2019; Union, 2019), countries have not managed to integrate the new regulatory framework and the regulatory framework is still limiting many citizens eager to participate in the energy sector such as prosumers (Inês et al., 2020). Institutional arrangements will have an impact in promoting or restraining participation and can enable or restrict but also promote or disincentivise communities to participate according to the rules in place. Practices such as decentralisation of energy production or multi-level alignment of government discourse and strategies are important catalysts for community participation (Oteman et al., 2014).

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4. Shifting towards a citizen-driven energy sector

Achieving regional, national, and global climate goals requires the fast decarbonisation of the energy systems and a shift from fossil fuels to renewables. Scaling up renewables requires multiple efforts in technology, investment, political will, popular support and international climate cooperation. Leading institutions promoting energy transitions such as the UNFCCC and the EU have reiterated the vital role of citizen participation in achieving these goals (EU, 2019; Union, 2019). The EU is pushing for more citizen participation through the Clean Energy for All Europeans initiative, more specifically in the 2019/944 decree and the RED II that include new rules that enable active consumer participation, individually, or collectively through citizen energy communities, in all markets, either by generating, consuming, sharing, or selling electricity (Union, 2019).

A shift from a conventional energy system to a renewable energy system not only leads to a technical change but produces also ground-breaking effects in the societal dimension of energy, particularly in the ownership structure and in the citizen inclusion in participatory processes. Renewable energies have technical characteristics which allow for more active engagement of citizens when compared to fossil fuels energy systems. The technical specifications of renewable energy production plants are

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transforming future energy systems. Figure 2 shows the social and structural changes that enable renewable energy compared to conventional energy systems.
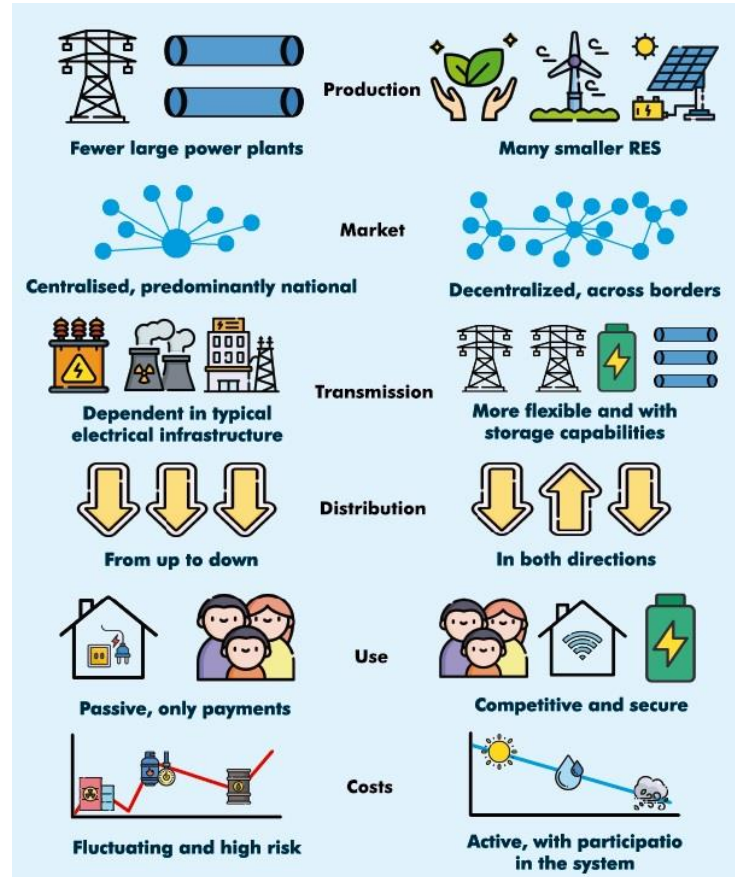

Figure 2: Comparison of conventional energy systems to new energy systems (source: PIK own adaptation)

Renewable energy sources are becoming increasingly diverse. At the beginning of the renewable energy era, orography, hydrology, and climate were crucial factors for the implementation of energy projects such as solar, hydro, and wind. However, innovation and technological progress have developed new technologies such as hydrogen or heat turbine systems. Additionally, existing technologies have become more efficient and today can be installed in locations where previously they were economically not convenient. The discussion on innovations in the energy sector should not only consider the RES, as there are also other components that influence and impact the energy environment. The demand side and storage are also undergoing rapid developments and must be considered. Energy storage technologies as well as electric vehicles are transforming the landscape and future of the sector (Ashmore et al., 2018; Sovacool and

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Griffiths, 2020). The consumer now has the opportunity to take a more active role in energy consumption and in shaping the energy future.

The development of more efficient and new technologies has also bought down prices, renewables by now in most cases produce electricity and heat cheaper than fossil fuels (IEA, 2020). RES has also succeeded in increasing energy security. International fossil fuel markets are highly unstable and prone to geopolitical risks such as the current energy crisis triggered by the Russian invasion of Ukraine.

The transformation of the energy sector is enabling more and more diverse ways of participation of existing stakeholders as well as attracting new ones, thus, creating a new landscape and more drivers that support a more ambitious and just transition. A landscape with more communities, regional cooperatives and citizens participating in different roles in the energy sector. The insertion of new participants and the shifting of roles also create new social dynamics where differences may arise. There is no perfect formula for integrating citizens into the energy system, however, involving local and ordinary individuals in the energy sector boosts the local acceptance of renewable energy projects (Eichenauer et al., 2018; Reusswig et al., 2016; Van den Hove, 2000).

This research paper stresses the importance of a citizen-driven energy sector. But what does it actually entail and why is it presented as the desired goal for stakeholders? Does it mean shifting ownership models to citizens or does it mean putting important decisions in the hands of citizens? This means, methodically, that different levels of understanding are necessary and, on an analytical level, that less conventional business and governance models are more likely to accurately reflect the active role of citizens´ participation. It must be approached from different levels of analysis; indeed, a citizen-led energy sector can be achieved when citizens are the majority owners of the energy projects. This means that less conventional business and governance models are chosen. However, the main desired consequence of a citizen-driven energy system is the democratization of the energy sector and citizen participation across the political decisions that shape its legal and institutional frameworks.

1. Enabling new roles of citizens´ involvement

The changes enabled by the transformation of the RES and increased citizen participation create new roles for energy citizens. Roles of energy citizenship are dynamic and evolve together with energy transitions. Understanding the dynamism and the relationship between the different roles will help us to understand their nature, their

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limits, and their flexibility. The holistic understanding of the roles and pathways of reaching energy citizenship will indicate ways of involving more citizens in more and different roles. This can be achieved through effective policy and by shifts in attitudes or behaviours that facilitate those changes.

Figure 1 shows the relationship between the inherent properties of individuals, the social capital they have and the roles they can take into consideration. Citizens can be enabled to take on different roles by modifying these connections either by modifying their properties or by modifying their social capital. However, these connections shown with a line may also change depending on the evolution of the energy sector and in terms of its legal framework, technologies, attitudes and behaviours, perception in the public and political sphere, and power relations.

Figure 1 also includes various roles that can be described in the energy sector.

The role of the **energy consumer** is the elementary role and the one that functions as a starting point in energy citizenship. In its most basic sense, it is understood as the use of heat, electric and kinetic energy (Lennon et al., 2020; McDougall et al., 1981). But the concept of energy consumer has much more to explore in order to understand the impact that citizens who "only" consider themselves energy consumers can have. Consumption is not only about the home and the act of turning on the heating and the lights or using appliances. Consumption also influences our behaviours and habits which impact the energy sector in different ways. The demand and use that citizens make of energy can also impact which and how those services are delivered.

The role of the consumer through a collective route can create an impact on communities. If enough consumers choose to change their habits and take a bike to work, then, the market will adapt to offer commuting solutions accordingly. Figure 3 shows the energy pathway that consumers follow and the impacts they can have individually such as impacting their GHG emissions or influencing their immediate circle in their consumption, and collectively by influencing markets on which products to sell or even influencing consumers beyond their immediate circle by setting consumption trends. The COVID pandemic has changed consumption habits and modified how and how much energy is consumed. Labour and commercial markets have and continue to adapt to this, and it has had social and economic consequences for the energy sector that will continue influencing consumers.

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Consumers are also an essential part of energy efficiency. As seen in the individual pathway, individuals can modify habits, and consume smarter, greener, and more efficiently to create an impact in reducing GHG. Energy demand-side solutions and consumers' ability to store energy also have specific characteristics that modify how and how much energy is consumed. Consumers can provide demand flexibility with their electric vehicles, smart e-boilers or stationary batteries (Jelić et al., 2021). Figure 3 is an example of how energy citizenship can be achieved in a specific role and can help us to visualise the outline of energy pathways, however, it must be remembered that roles are neither static nor limited. It is therefore not the aim of this research to define them.
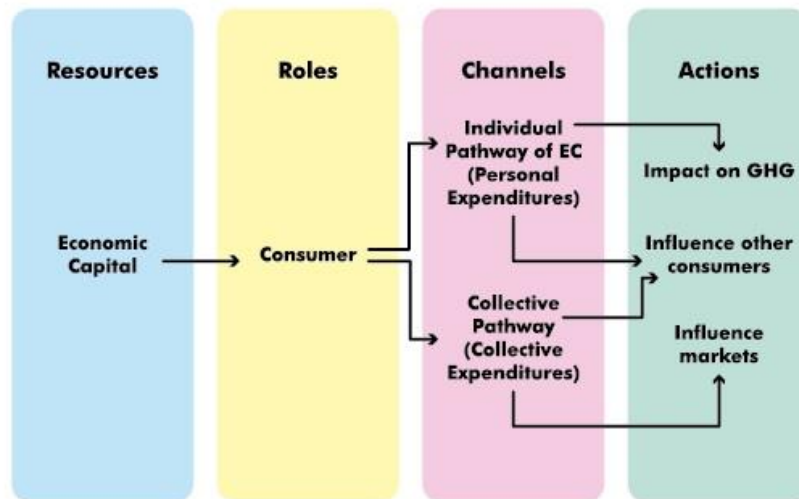

Figure 3: Energy consumer through the lens of the Energy Citizenship Pathways

A distinct dimension of roles entails citizens taking an active role in energy generation. **Prosumers** are individuals who produce their energy in addition to their existing consumer role. This possibility opens a whole new landscape for the impacts and possible roles that are enabled for the energy citizen. Although in this case, the energy generation is only by individuals or households, it can have an impact on the planning of the energy system in terms of increased flexibility on the demand side (Zafar et al., 2018). In a collective dimension, prosumerism through the collective pathway of energy citizenship can be considered a social movement (Wuebben et al., 2020). Hence, enabling an additional role for the citizens with more influence within the energy sector.

Citizens that are financially able to invest in stocks, bonds, businesses, and real estate can participate in more roles. **Investors** can have a major impact by investing in renewable energy projects and technologies that influence how they consume (e.g., buying stocks in greener businesses or in pushing for a more efficient transport fleet in

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a business). But on the other hand, they can also have a negative influence by investing in fossil fuels or companies involved in climate perverse activities (e.g., fracking or palm oil extraction). Not only do they influence the market, but also directly on energy consumption.

Investors can influence organisational decisions either formally through their influence on the board or informally through unspoken contracts influenced by their investment. Depending on the capital and nature of the investment, they can even influence political decisions and stop political or social movements pushing for greater regulation of anti-fossil fuel investment policies (Nielsen et al., 2021).

The use of new technologies and new investment platforms has allowed more people to take a more active role as investors (Powers, 2016) (e.g., the popularity of web-based platforms for buying shares and cryptocurrencies). The investment decisions that individuals take influence the energy sector and investment legal frameworks are also constantly adapting to these market decisions (Masini and Menichetti, 2013). Perhaps in the future, we will see more favourable tax conditions for investors in businesses that have better climate and energy practices (e.g. energy efficiency certifications and carbon neutral companies) and/or less favourable conditions for fossil-fuel investments (Freire-González and Puig-Ventosa, 2019). People are also making these decisions on their own and are influenced by other motives beyond the economic benefit (Davis et al., 2019). If more individuals opt for greener choices, then we may see changes in companies' energy consumption, new project development and investments.

People replicate consumer behaviours and aspire to the lifestyles of **role models**. This has been further fuelled by social media and the internet (Ingold et al., 2019). The actions that influential citizens take locally, regionally, and globally; can have an impact on energy consumption and markets. The use of electric vehicles or switching to more environmentally friendly diets are examples of consumption and "lifestyle" that have become popular among some citizens that influence many others (Ashmore et al., 2018). However, there is a downside where many citizens want to aspire to the "western" consumerist lifestyle. Aspiring to a luxury car, living in a big house, frequent air travel, and other behaviours that would only increase emissions and energy consumption. Role model citizens need to be more aware of the impact they have as roles to play, meanwhile, followers have to be more cautious not to be influenced by environmentally perverse practices.

Citizens may also have access to political roles that can influence the development of laws, programmes and public policies that impact the energy sector. **Political citizens** can be activists, union leaders, active members of political parties, lobbyists, or the essential role of the voter in elections and other political decisions. Energy citizens engaging in social movements can give a voice to not only their interests but also to others affected that can´t participate, especially minorities in energy poverty and energy justice cases (Feenstra et al., 2021; Sanz-Hernandez, 2019).

The roles mentioned above are broad and can be redefined into more specific roles depending on what is to be analysed. Their enablement and impact will depend on the social, economic, and cultural capital of the citizen (Cf. Figure 1) and the regulatory framework of the EU. The EU made a recent effort with the CEP to increase citizen participation and aim for a citizen-driven energy sector. In the CEP, some roles were redefined, and minimum requirements are included to be qualified for such a role. The most relevant ones are mentioned below:

The **Renewables self-consumer** is the end-user who generates and consumes and/or sells his own generated energy without this being his main commercial activity. [2]

A **Citizen Energy Communities (CEC)** can be integrated by individuals, local authorities including municipalities, and/or small enterprises that collectively generate energy, consume, store and/or distribute the energy generated. It has the faculty to commercialize the generated energy and other associated services to the members of the community. The stakeholders or shareholders have effective and democratic control over the CEC. The current requirements to support member states in their regulation to set up ECOC in the EU are included in Art. 16 ED 2019 of the PEC. [3]

Similar to the CECs, **Renewable energy communities (REC)** can be integrated by individuals, local authorities including municipalities, and/or small-medium enterprises (SMEs) that collectively generate energy. RECs can generate, consume, store, and sell self-generated renewable energy. The stakeholders or shareholders have effective and democratic control over the REC. Art. 2 (16) of the RED II contains the current definition of the RECs in the EU. Each member state defines the grid connection factors and the proximity criterion for the creation of RECs. The Cf. Art. 22 of the RED II includes the

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[2] Cf. Art. 2 (14) ED 2019; Cf. Art. 2 (15) RED II.
[3] Cf. Art. 2 (11) (c) ED 2019; Cf. Art. 2 (11) (a) ED 2019; Cf. Art. 2 (11) (b) ED 2019

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obligations for the member states to guarantee non-discrimination and a regulatory framework that allows consumers and members equal and just participation. [4]

As mentioning roles, it is important to understand that are dynamic and adapt according to current legislation, available technologies, and different available capital (Cf. Figure 1). However, understanding the nature of the roles and what they can influence along with the use of pathways to energy citizenship will support identifying how and where is possible to intervene in order to enable more citizens in more roles.

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[4] Cf. Art. 22 (2) (a) RED II; Cf. Art. 22 (2) (b) RED II; Cf. Art. 22 (2) (c) RED II; Cf. Art. 2 (16) (a) RED II.

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5. Conceptualising energy citizenship: Ownership, participation, and conflict

To achieve a citizen-led energy sector, more people need to be engaged in power positions and decision-making roles for shaping the energy future. Understanding the energy citizenship pathways will help to identify how and where to intervene with effective public policy in order to empower more citizens in more roles. A citizen-driven energy sector cannot only shape energy transitions and the scaling up of renewables, but It can also achieve multiple socio-economic benefits to society (Helgenberger and Jänicke, 2017; Markkanen and Anger-Kraavi, 2019). However, nations are currently far from a citizen-driven energy system at the moment despite the last climate policy efforts from the EU. Assessing ownership, participation, and conflict in energy can give us a perspective on the current state of the energy sector. We can thus contrast previous discussions on the conceptualisation of energy citizenship with what DIALOGUES aims to achieve for the future of the energy sector and its citizens.

1. Ownership

Ownership refers to legal and economic relations relevant to the energy sector. The relevance of the ownership dimension is threefold: (1) Law is a primary form of political, in particular, state action in modern societies, (2) financial assets and transactions are core building blocks of capitalist market societies that we are looking at, and (3) ownership in a non-legal sense is needed in order to generate new ideas and to organize public support for the energy transition (Cumbers, 2012).

In this paper we have described potential roles that can be enabled to achieve energy citizenship, some of the roles are specific to energy community participation that has been developed and studied widely in the past few years, notably since the development of new technologies that enable citizens´ self-generation (Bouzguenda et al., 2019). Energy ownership can exist through individual ownership entities (individuals, companies, and institutions) as prosumers, co-owning a RES with other entities, and/or being part of a collective CEC or a REC. Community-based RES can also include local and regional governments.

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In collective ownership, individuals pool their economic and non-economic resources to invest in a community-based RES. The roles of individuals at a CEC or a REC will depend on the level of engagement and the structure of the communities. The entry role in communities enables certain rights and responsibilities, which will depend upon the composition of the community, and it is typically the member or shareholder role. Roles are limited to the internal rules of the energy community itself. Roles with higher responsibility may include being a member of the board, moderating administrative issues, or attracting new members.

The EU CEP supports the formation of community electricity. The most important motive to join a CEC, as became clear also in the DIALOGUES expert interviews, is the economic benefit with other motives being the environment and climate, obtaining energy independence, using more sustainable solutions, and having a more united community. The EU CEP implementation is expected to be an impulse for the further development of energy communities (EU, 2019). The CEP reporting system, together with their national energy and climate action plans, enable countries to identify concrete measures to implement the rights of citizens and energy communities in the recast Internal Electricity Market Directive and the recast Renewable Energy Directive (Caramizaru and Uihlein, 2020, p. 32).

Energy communities will require in the future more viable business models to plan and run the projects to attract more investments, streamline the processes for entering the various support mechanisms, and render them more transparent. Another recommendation made by (Caramizaru and Uihlein, 2020) is to establish local ownership quotas in community projects to guarantee local support. Furthermore, they suggest including business models that facilitate self-consumption, investing in larger-scale projects and thinking not only in basic grid systems (e.g., solar panels with higher generation capacity or wind systems) and in energy storage batteries.

The concept of energy citizenship has recently also been linked to the term citizen ownership. Energy ownership has been explored to define different citizen-owned schemes. However, there have been wide-ranging definitions and this ambiguity is a risk that may allow perverse ownership schemes defined as citizen ownership (Gorroño-Albizu et al., 2019). This is where the main difference between energy ownership and energy

citizenship lies, energy citizenship looks at the individual and the roles they can take either individually, collectively, or institutionally within energy ownership.

There are different citizen ownership schemes with different ownership shares for their stakeholders. Schemes where citizens own the project in its entirety, where it is the majority (understood as 50+1), or where only a percentage of the project is owned by citizens (Walker and Devine-Wright, 2008). However, it is not intended to be normative in limiting in which cases or in which percentages there is a project that we can classify as citizen owned. It is more valuable to highlight that energy citizenship projects are those where citizens have control over the decision-making processes. There may well be RES with large investors, with few citizen's capitals, but which nevertheless fulfil the characteristic that citizens are the ones who have control over the decision-making process.
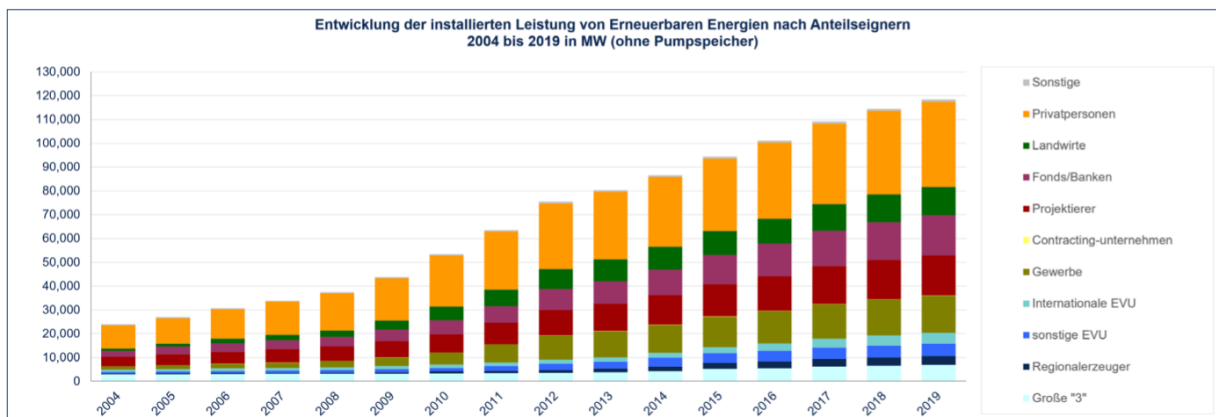

Figure 4: Renewables installed capacity by ownership from 2004 to 2019 in MW

Error! Reference source not found. shows the ownership of RES in Germany between 2 004 and 2019. The graph shows that a large percentage is in the hands of private citizens and that more than half of the installed capacity is in some way linked to citizens (Trend:research, 2017). Furthermore, the Energy Atlas study estimated that in Germany only 5% of installed capacity is in the hands of large, traditional energy players (Bertram et al., 2018, p. 16). However, the owners do not make the decisions in all cases and many of the owners are investors and equity owners in schemes where decisions are not citizen-driven. However, there are already initiatives in place to encourage greater citizen integration in community projects, one example is in Denmark where onshore projects can only be approved if at least 20% of their shares are owned by citizens living in the region where the project is developed (Bertram et al., 2018, p. 16). These initiatives

are a step forward in increasing citizen participation and are desirable, however, the goal of having an energy sector where citizens take the lead and are at the centre of decision-making is a long way off.

2. Participation

Participation focuses on the role of citizens in organizations and actions that bring about the goals of the Energy Union. Participation starts with information but includes more ambitious steps of involvement, such as getting heard by decision-makers or being represented in decision-making bodies. It can also include political support for energy policies in a city, region, or nation. In an effort to outline the differences between energy citizenship and energy democracy, Wahlund and Palm analysed the connections and variations between concepts. The analysis found a similar typology concerning the subject of participation with some distinctions. Both concepts distinguish and address consumer-type participation, formal deliberative participation and participation through ownership (Wahlund and Palm, 2022). The consumer-type participation was previously described in chapter 4.2 when describing the roles and their scope across the different pathways of Energy Citizenship. Consumer decisions (participation) at the collective level can have an impact on demand and energy grid planning. Formal deliberative participation processes comprise those processes where citizens are empowered to vote directly or through a political or community representative, e.g., community leaders as a spokesperson. Participation is enabled through ownership mainly through RECs and CECs, the acquisition of partial or full ownership of a RES enables participatory rights and obligations that will influence decision-making.

The most preferred participation-type for public engagement in public administration and also most preferred for conventional energy systems (and players) is consumer-type participation since it requires less regulatory intervention and favours centralisation (Mullally et al., 2018; Sarrica et al., 2018). Consumer-type participation is especially criticised by Lenon et al. for its lack of disruption to traditional energy consumption and production systems (Lennon et al., 2020). The structural changes required to achieve a citizen-driven energy system need deeper systemic and regulatory disruptions that enable more participatory, inclusive, and transparent decision-making energy structures.

The differences that Wahlund and Palm found on the issue of participation between energy citizenship and energy democracy are that energy democracy literature centres on

the question of how energy can be governed more democratically, while the energy citizenship literature tries to identify what roles citizens can take in more participatory forms of energy governance (Wahlund and Palm, 2022). In exploring the potential roles of the energetic citizen in this research, the figure of the political citizen and its different possible role configurations were included. A type of participation that occurs when citizens engage in social movements despite the lack of formal deliberative participation.

It is important to recognize that more participation does not necessarily mean better and more inclusive participation. Participation in energy communities is generally non-discriminatory to any citizen who complies with the payment of the monetary shares stipulated by the same collective and to other rules of participation such as location. However, analysis of the demographics of the participants shows that there are social groups with lower participation shares (Nielsen et al., 2021; van Holm, 2019). Moreover, it is seen among studied energy communities that groups with the highest representation tend to be homogenous. Considerably more men than women, middle to high-income people, university-educated people, and very few people with an immigrant background (Fathoni et al., 2021; Nielsen et al., 2021).
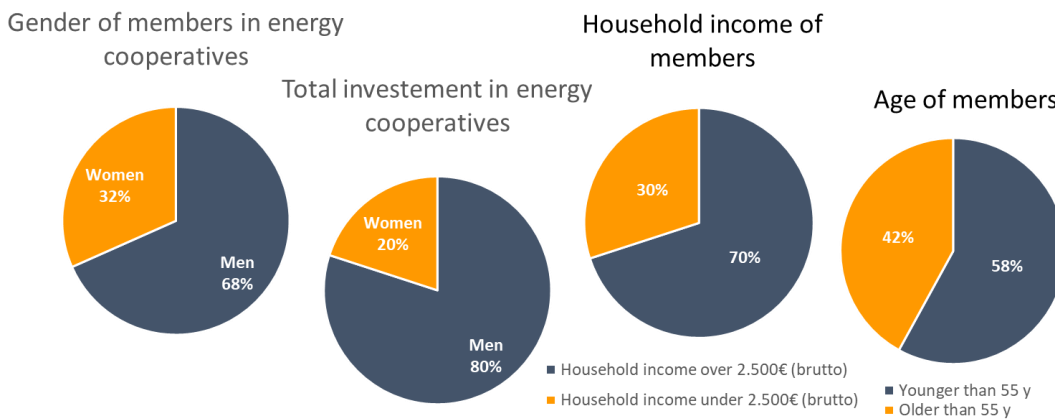

Figure 5: Participation in Energy communities in Germany

Citizen participation can support the scaling up of renewable energy, however, each technology and social and legal configuration represents differences for successful participation. Individuals and thus collectives have their preferences for certain technologies or implemented processes. Azarova, et al, 2019 researched the local acceptance of different configurations of local RECs in different European countries. The research demonstrated that social acceptance would depend not only on the proposed configuration but also on the proposed technology. Photovoltaic (PV) and Power-to-Gas

(PtG) are more preferred than wind energy, but wind energy it is more accepted than conventional energies.

The Barometer conducted by the Kopernikus-Project in Germany supports the social acceptance by technology, demonstrates that there is a positive acceptance of RES development in local communities and there are many more citizens who are in favour of energy transitions (Wolf et al., 2021). Table 1 shows that more than 74% of the surveyed citizens support Germany's energy transition. This represents a growth of more than 4.9% compared to 2021. This positive trend has been sustained for the last few years since the start of the Barometer.

Energyy transition in Germany (IASS 2022, p. 19)						
	Year	I totally agree	I tend to agree	partly agree	I am not convinced	I don´t agree
I support the energy transition in Germany.	2022	48.6	25.5	15.9	5	4.1
	2021	38	31.5	19	5.7	4.8
I doubt that the energy transition in Germany will make a significant contribution to climate protection.	2022	10	11	9	31	28
	2021	12	13	12	34	21

Table 1: Energy transition in Germany (IASS 2022)

Acceptance of the energy transition is one issue, but it is another perspective when projects associated with the transition are developed in local communities and neighbourhoods. This is when resistance, disputes and even conflicts can arise. Phenomena like NIMBY and PIMBY have shown us that more people are in favour than against when developing RES in communities. However, it is not only about acceptance, but about processes, inclusion and passing on the benefits to the communities (Reusswig et al., 2020). Table 2 contains the acceptance for PV panels and wind plants developments in local communities has increased of 71% and 59% respectively, this is an increase of 4% for both cases from 2021 to 2022.

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Renewables in my neighborhood (IASS 2022, p. 19)							
Type of power plant	Year	I'm absolutely not in favor.	I'm rather not in favor.	I don't have an opinion on this.	I'm rather in favor.	I'm absolutely in favor.	This wouldn't be possible in my community.	I don't know. / No answer.
Solar panels on unoccoupied land	**2022**	6	10	8	31	40	3	1
	2021	7	11	11	35	32	3	2
Construction of new wind power plants	**2022**	10	11	9	31	28	7	2
	2021	12	13	12	34	21	6	2

Table 2: Renewables in my neighbourhood (IASS 2022, p.19)

Renewable technologies should be carefully selected according to local preferences. The study from Azarova et al, also found that socio-demographic characteristics such as gender, age, income, and education have an impact on the acceptance of the technology. A proposed solution to enhance acceptance in the study is the implementation of educational programmes and the use of advertising campaigns towards the groups with less acceptance of the proposed technology to enable the multiple cobenefits of community RES (Azarova et al., 2019; Helgenberger and Jänicke, 2017).

In order to understand the benefits of citizen participation in the energy sector, it is plausible to assess the benefits that energy communities have compared to their conventional commercial competitors. Energy communities are mostly localized in a region and have the characteristic of seeking benefits for the community beyond seeking commercial profits. Added benefits can be local income generation, energy independence, pride, sense of belonging, political positioning, environmental awareness, and other social and economic benefits (Brummer, 2018; Helgenberger and Jänicke, 2017; Koirala et al., 2016). However, direct profit sharing to its members, the competitive price advancement of renewable technologies, an adequate market where fossil energies are not subsidized, adequate support schemes, and a friendly legal framework can also enable (or disincentivize) energy communities as an attractive business model where people participate not only for the economic reasons.

People are eager to contribute to the energy transitions, however, the Barometer found that citizens are not so inclined to invest in renewables at the moment or have no opinion on this. Table 3 shows what citizens' preferences are for investing in some of the ownership schemes of the energy transition. If anything, it is clear that there is little information available to citizens about the possibilities they have to invest. 46% of citizens have no opinion on investing in community RES and 30% on investing in commercial RES projects.

Type of participation	Year	I'm absolutely not in favor.	I'm rather not in favor.	I don't have an opinion on this.	I'm rather in favor.	I'm absolutely in favor.	This wouldn't be possible in my community.	I don't know. / No answer.
Financial investment into a RE power plant owned by the public	2022	11	20	46	3	3	11	7
	2021	16	21	42	4	3	6	8
Financial investment into a RE power plant, commercially owned, e.g. energy providers	2022	16	29	30	2	4	9	9
	2021	22	33	25	2	2	6	9
Investment in climate-friendly savings system, e.g. savings, retirement and stock market fonds	2022	14	21	31	6	17	4	7
	2021	17	21	33	5	11	4	9
Energy supply through local providers	2022	3	6	60	6	11	9	6
	2021	3	7	59	6	11	5	8

Table 3: Opportunities for financial participation in the energy transition (IASS, 2022, p.21)

The survey Table 3 also showed that many people are not currently in favour of investing in community RES despite the impetus to contribute to the energy transition in more roles. The reasons for this may be varied, but the current "rules of the game" and the subsidies and support for fossil fuels (directly or indirectly) are among the most important barriers. Only in the EU, "member governments distribute over 112 billion euros a year in handouts to the fossil-fuel sector. In contrast, renewables receive 40 billion euros." (Bertram et al., 2018, p. 15). Recent changes driven by the European Green Package accompanied by the RED II legislation promise to bring about positive change to convert this eagerness to participate into effective investment by citizens.

One of the main assumptions of energy democracy likewise suitable for energy citizenship is that inclusive decision-making processes could strengthen the legitimacy of energy policy, especially regarding renewable energy transitions (Wahlund and Palm, 2022). A citizen-driven energy sector should deliberate energy policy at the community scale and feed into local authority, regional, and national plans through an inclusive bottom-up approach. More than 60% of the survey citizens in Germany think that the German government does not take the interests of its citizens into account when shaping the country's energy and mobility transition (Wolf et al., 2021).

There are citizens´ eagerness to be more involved in the community electricity systems, 53.8% of the surveyed people think that citizens should generally be involved to a lesser

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or greater extent in decisions about the shaping of the energy transition in their city/municipality. But how involved do citizens want to be in the electricity system within their communities? More than 51% would like to be involved in a variety of ways, either by receiving more information, having a space to be heard, attending meetings or citizen dialogues, or being involved in decision-making. However, the number of citizens wanting to participate in decision-making processes was only 2%.
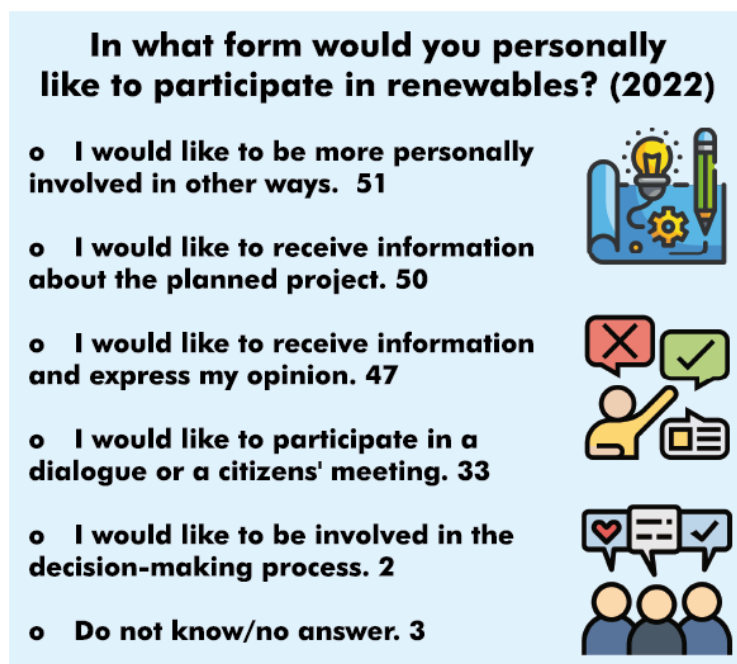

Figure 6: Citizens 'participation forms (IASS, 2022)

The multiple benefits of citizen participation and the importance of having a citizen-led energy sector have been mentioned throughout this research. Additionally, there is the willingness of citizens to become more involved in energy transitions and local participation and ownership of RES. However, there is a disparity between this willingness and citizens' opinions when it comes to investment now. The reasons for this disparity are varied and depend in different degrees on the community and renewable technology. It is important to bear in mind that just like energy transitions, energy citizenship is a process and just like the progress that has been made in this willingness to invest and embrace energy transitions. It is plausible and desirable that citizens convert this willingness into action once conditions improve and barriers are overcome. The acceptance of renewable developments and the willingness of citizens to participate does not mean that it will move forward. There are cases where there is pressure to develop new energy projects and tensions can emerge over the location and ownership of infrastructure (MacArthur et al.,

2020). These tensions are likely to intensify if not resolved in a timely manner and conflict may arise.

3.   Conflict

Conflict is an important concept for analysing energy citizenship for two reasons: (1) Complex societal transformation processes – such as deep decarbonisation of the given society – do always lead to conflicting viewpoints and must take different, sometimes conflicting interests into account. A common descriptor here is the distinction between incumbents and challengers (Fligstein, 1997). (2) More recently, we have seen the rise of (right-wing) populist actors and discourses that have started to challenge the rationale for the energy transition (i.e., anthropogenic climate change) and support specific energy policy suggestions that mostly run against the goals of the Energy Union. It is important to understand the conflicts that arise around the emerging energy citizenship concept in general, and populist interventions in particular (Fraune and Knodt, 2018, pp. 1–7; Reusswig et al., 2021).

The current state of climate emergency urges accelerated climate action, sustainable consumption, decarbonization of our energy systems, scaling up renewables, and greater energy efficiency measures, among others. While addressing individual behaviour is important, collective activities can accelerate the processes and increase social acceptance of energy transitions. Surveys on the social acceptance of renewables and of the energy transitions are in general positive (high), however, there exists strong opposition in the planning and development of some renewable energy projects, especially concerning wind developments (Liebe and Dobers, 2019; Wolf et al., 2021). Reasons for this strong opposition are various and include health concerns, concerns of landscape integrity and beauty, nature conservation concerns, fear of loss of property value, doubt of economic benefits for the region, and criticism of procedural justice. Usually, these opposition groups (also an expression of collective action) do not criticize the energy transition as such but want to avoid a particular project only (e.g., pleading for larger distances between wind turbines and human settlements). In the literature, this kind of protest has been termed NIMBYism, derived from Not In My Back Yard (NIMBY). Under the influence of right-wing populist discourses and actors, usually doubting anthropogenic climate change and thus rejecting the clean energy transition, these protests become more radical and more fundamental, as political adversaries are treated as enemies (Eichenauer et al., 2018; Reusswig et al., 2020, 2016; Weber, 2018).

There is a wide consensus that these conflicts can be alleviated when there is more participation from citizens (Cuppen, 2018). Participation here is understood as the means of civil consultations, inclusion in the governance and participatory processes, or ownership. Citizens act in collective roles impacting either speeding up processes or slowing down processes in climate action.

We understand conflicts not as an outcome but as a process. Conflicts are dynamic entities that break through an expectation of normality or routine (Dahrendorf, 2003; Olzak, 1994). In terms of energy citizenship, we see classic economic conflicts on the one hand, and conflicts over locations and values on the other. These lines of conflict can stand side by side, be interwoven or even contradict each other.

The processual nature of conflicts is also based on the understanding that conflicts are not good or bad as such. Rather, it depends on how they are carried out in order to be able to make statements about whether a conflict has productive or destructive consequences. It is therefore wrong to look only at the outcome, but rather to focus on the negotiation process and the participation.

Democratic societies try to resolve conflicts through participation, mostly in a representational way. This raises two questions: How well does representation work against the background of energy citizenship? And do democratic societies succeed in involving all stakeholders in the process against the background of global interdependencies?

In the context of energy conflicts, the wind turbine represents the prime example, and much can be learned from conflicts in that context. In particular, issues of affectedness and the urban-rural divide are especially virulent. Solar or hydroelectric power, however, also bears conflict potential. Moreover, in addition to electricity generation, various lines of conflict and their specifics must also be taken into account in the heat and transport sector.

A concept of energy citizenship cannot do without an understanding that conflicts are part of it and must be made useful. In the reclamation of energy issues by the citizens also lies the reclamation of the conflicts around these energy issues. Conflicts in the context of a sustainable energy transition find themselves often with populistic actors. The Demokon project is investigating how populist actors are using the fight against the energy transition for themselves and what a democratic and productive way of dealing with conflicts in the energy transition might look like (Reusswig et al., 2021). For this purpose, attitudes,

interpretation patterns and conflict dynamics in the context of the energy transition will be researched in order to develop and test conflict resolution strategies. In this way, local polarization is to be avoided as far as the possible and democratic culture of dispute and negotiation is to be strengthened.

In order to be able to deal with conflicts, they must be recognized at an early stage and an appropriate way of dealing with them must be found. Finding the right balance is often not easy, especially since perceptions can diverge greatly. This was also reflected in the surveys of the Demokon project.

If we ask the regions how the attitude to the projects is perceived in their own municipality and contrast it with the respondents' self-reported attitude, it becomes clear: the rejection of energy transition projects in the region is clearly overestimated. The respective technologies and measures are perceived everywhere as more controversial than they actually are (see Figure 7).
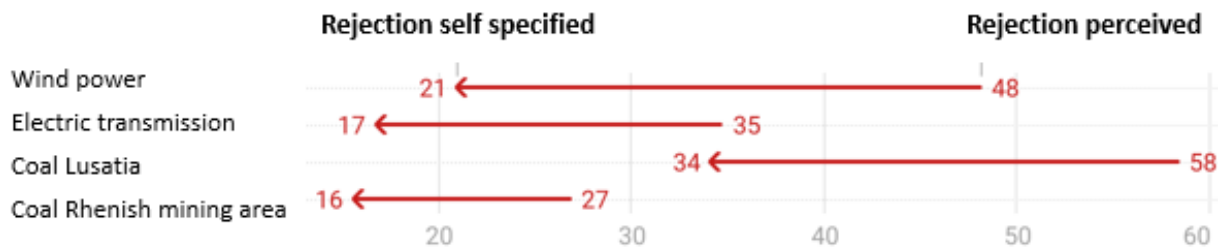

Figure 7: Difference between perceived and self-reported rejection of energy transition measures in affected regions. Regional surveys (N=2,010)(Teune et al., 2021)

The concept of energy citizenship must therefore also be about correctly assessing the conflicts in their perception. However, the balancing act is not only to overestimate vs. not perceiving the conflicts enough but also how to react to them. Solving conflicts only with scientific facts doesn't seem auspicious. Populist standpoints are rather anti-scientific or at least very selective when it comes to scientific results (Bellolio, 2022). If we look at the populist voters we cannot avoid the fact, that it is not only a matter of denying, they also mask their fears about transformations, costs, and perceived injustice by simply doubting science/anthropogenic climate change. It is useless here to improve the public understanding of science. Instead, one would need to solidify the credibility of socially just transformation processes.

We see that the collective discussion of the energy transition as energy citizens will not only be reduced to technical questions but will explicitly include social questions about the transformation. It is precisely through these references, the collective negotiation not only of the solution but also of the path to it, that binding energies to the process and the result can be generated

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6. Expert interviews from DIALOGUES: Voices on ownership, participation, and conflict

In the DIALOGUES project, the consortium conducted 82 semi-structured in-depth interviews with experts from eight partner countries of DIALOGUES, namely, Austria, Bulgaria, Germany, Greece, Italy, Norway, Switzerland, and Türkiye. The aim of these interviews was to foster direct participation of actors through enhancing dialogue between citizens, policymakers, public authorities, municipalities, and consumer organisations (Biresselioglu et al., 2022). The experts include public and private sector members, such as public administrations, representatives of utility companies, NGOs, and community associations. The overall methodology of Deliverable 5.2 of DIALOGUES is a co-creation approach using social learning to reflect on energy citizenship and shared visions of sustainable energy futures. The interviews aimed to understand, from the experts' perspective, why citizens engage or do not engage with the energy transition and energy initiatives in the associated countries. These semi-structured in-depth interviews reveal the knowledge and experience of experts, including the best practices, using detailed and in-depth data collection. Since interviewers focused on experts' process and interpretative knowledge to understand how the experts understand pathways to energy citizenship, we chose purposive sampling and semi-structured interviews (Bogner et al., 2009).

The in-depth interview guideline was designed and prepared by IUE and UNIGE teams. Following the guideline, each partner started the recruitment process in their country. The recruitment procedures began in December 2021, and the in-depth interviews were conducted between January 2022 and April 2022. The duration of the in-depth interviews was 45-90 minutes per interview. Then, the recordings of the expert interviews conducted in national languages were transcribed and translated into English by each partner. Each partner submitted the translated and anonymised versions of their interviews to the DIALOGUES repository. The results of the in-depth interviews were checked and analysed through triangulation (Denzin, 1970).

The expert interviews showed that there are several ways for citizens to engage in the energy transition in each country. The type of individual engagement also varies among experts and organisations. A number of experts in Italy express that citizens' participation

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levels in energy transition initiatives depend on various factors, including age, socio-economic status, territorial scale (local initiatives seem to raise more participation), and political and structural support. Similarly, experts in Switzerland witness varying participation dynamics among different parts of the population. Despite some limitations, there are several initiatives of experts' organisations that seek to engage citizens in the energy transition:

"Local authorities...are very committed and try to implement different projects, topics, and specific projects in their communities".

INAT5, Austria, Senior Expert in Austrian Energy Cooperation Start-up

"We carried out an important project, a 900-kW wind turbine, which was connected last autumn, a project that was very popular and well attended, … that gave us a lot of satisfaction."

INIT3, Italy, High-level representative energy cooperative

"[…] We have moved on with the campaign, having meetings to tell people that they can carry out everything from re-insulation, replacement of windows, control systems, sun on the roof and such."

INNO4, Norway, Representative of environmental interest organisation

Experts in Germany provide the example of the Alliance for Energy Citizenship as a network to share knowledge about collective action, such as energy citizenship. Accordingly, the Alliance for Energy Citizenship organises events related to energy citizenship. It is also a significant organisation lobbying for energy citizenship. The network has initiated an international platform called EUCENA, to teach about energy citizenship. Furthermore, experts in Germany also perceive EWS Schönau, a citizen-organised initiative that established their local electricity grid in the 1990s, as an essential enabler and role model of energy citizenship. Other examples from German experts are Rescoop and Bürgerwerke. For experts in Italy, PNRR (National Recovery and Resilience Plan) is a significant example of an initiative because it supports all activities that can help reduce energy costs and conserve resources for sustainability, including measures to improve the reliability and flexibility of the energy system. Accordingly,

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PNRR involves younger citizens in sustainable transportation initiatives with the creation of bicycle lanes or the development of environmentally friendly transportation in Italy and also aims to finance start-ups to implement the ecological transition.

"[…] There is an incentive for the small household user as these regulatory policies and regulations develop. In this sense, everyone can produce electricity. For example, incentives are given by providing specific equipment for roof applications […]"

INTR5, Türkiye, High-level Representative from Private Utility Company

Several experts in different countries point out that people can engage in the energy transition at an individual level. For instance, various stakeholders in Bulgaria express that many citizens are becoming interested in RES technologies (mostly photovoltaic and solar panel installations) and are installing household RES systems. Other popular energy shifting practices in Bulgaria include the replacement of coal and firewood for residential heating with pellets. Experts in Türkiye mention that people can install rooftop solar panels in their houses and produce electricity. Similarly, experts in Germany explain various ways of individuals' participation in the energy transition, including shifting to a green tariff and installing renewable power plants, saving energy, becoming active in energy initiatives, and switching to regional and green suppliers. According to experts in Norway, people can adopt smart energy measures at home, by purchasing new technology such as solar panels, decreasing their houses' heating temperatures, joining meat-free Mondays, repairing their products instead of purchasing new ones, participating in smart agriculture networks or others, or getting involved with urban development. Meanwhile, the experts also argue that citizen engagement is rare and can be challenging at an individual level, and it is easier when citizens gather in associations or teams in Norway, such as in some neighbourhoods.

[…] As a consumer you have the possibility to...to get involved and then the possibility to give strong signals. Through these purchasing decisions […]"

INCH9, Switzerland, High-level representative of the federal energy department

In addition to the individual level, citizens can generally engage in the energy transition via energy cooperatives and communities. Experts in Germany point out that energy cooperatives are a very efficient way to engage in the energy transition because the

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cooperatives provide economic profit and knowledge to their members. Experts in Switzerland argue that there are several reasons for the participation of citizens in energy cooperatives. Apart from environmental reasons, citizens participate in energy cooperatives because they are willing to become actors in the energy system or to support people living in the same community. At this point, word-of-mouth is important in the sense that people who are involved in energy cooperatives usually hear about these cooperatives through their neighbours and friends. As suggested by the experts in Italy, educating citizens on energy transition-related issues may raise more participation, and the energy cooperative model might be a valid method to involve citizens in the energy transition. As a board member of a renewable energy cooperative in Germany, an expert interviewee refers to the Alliance for Energy Citizenship as a network working effectively in lobbying for energy citizenship and providing knowledge about citizen participation in the energy system. As a journalist/activist in Türkiye, an expert interviewee gives examples of initiatives to establish energy cooperatives in Canakkale and Bursa.

"There was a process in Seferihisar regarding establishing an energy cooperative. There are very well-intentioned initiatives and collective works […]"

INTR2, Türkiye, High-level representative from Metropolitan Municipality

Similarly, energy communities are regarded as significant enablers for citizens' participation in the energy transition. For instance, the predominant view of interviewees in Greece is that the deployment of RES projects should be done through energy communities because, in this way, citizens can be co-investors, co-beneficiaries, and participants in the projects to have economic, environmental, and social benefits. Furthermore, experts in Austria highlight that current engagement does not occur through top-down mechanisms but rather at the regional level in Austria via 'citizen participation models' or 'energy communities'. According to observations of a physicist and environmental engineer in Italy, the energy communities are also particularly effective in Italy.

On the other hand, citizen engagement in the energy transition at the collective level appears to be quite rare in a number of countries. According to the experts in Bulgaria, although there are examples of collective action of citizens to support the energy transition, no energy communities have been established in Bulgaria until today. The main reasons are the lack of public awareness, the lack of a regulatory framework, and

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incentives to empower citizens to become prosumers and develop energy communities in Bulgaria. Similarly, experts in Germany think that even though energy communities are crucial enablers of energy citizenship and sustainable practices, there is not a sufficient number of energy communities in Germany due to the fact that, in terms of the current legislation, Germany has not fully translated the EU directives on energy communities into national law, which is very significant for energy citizenship. According to a head of the energy agency in Italy, energy communities will not thrive as long as "there is no broad evidence of saving in the bills" (INIT5).

While experts in a number of countries reveal that citizens are interested in participating in the energy transition, others point out that there is a lack of public awareness and interest in these issues in their countries. For instance, while most experts in Austria agree that citizens are highly interested in this issue, a number of experts in Italy point out that awareness is certainly deficient at the level of large organisations such as universities, regional governments, and public institutions. Furthermore, according to several experts in Norway, certain topics raise more engagement than others, including forest conservation, energy, and transport solutions. However, according to several experts in Norway, the vast majority do not participate in the energy transition because people lack a long-term perspective on energy issues. Perspectives of experts in other countries differ according to their positions, as depicted in the quotations below:

"I have the impression that there are people around me who don't give a damn about the environment and who are not going to change anything in their life because others are demonstrating in the street"

INCH8, Switzerland, energy consultant for public authorities

"[…] All my friends who have a garden are asking whether or not they can build solar panels in their garden […] I think the end consumer and the citizens are slowly becoming aware of it […]"

INTR9, Türkiye, Representative of a Professional Network for Women in Turkish Energy Sector

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"We try to disseminate both good practices and technologies, but we realise that very often citizens are not yet ready to understand, except in a few cases where we see more sensitivity to the issue […]"

INIT5, Italy, Head of energy agency

To raise public awareness and the engagement of citizens in the energy transition, experts in several countries emphasise their perspectives and their organisations' efforts related to this issue. A foundation's executive manager in Italy points out that the foundation is constantly working to raise awareness of environmental and energy issues through its initiatives and numerous collaborations with research institutions and universities. Furthermore, this foundation in Italy receives approximately 100,000 visitors each year, promoting physical engagement. In addition to this, this expert in Italy explains that the internet and social media channels are other useful tools to increase citizen engagement in the energy transition. According to a number of experts in Switzerland, environmental movements and climate strikes are helpful for the energy transition because these movements and strikes can have an impact on agenda-setting and the orientation of future energy policies. On the other hand, other experts in Switzerland do not feel that these protests can have a large influence on the Swiss population's opinions. Regarding the issue, a number of experts in Germany emphasise that FFF is an important platform for enhancing the participation of young people and, in return, raising their awareness.

Several experts in different countries illustrate the reasons behind individuals' decisions to engage in the energy transition process. A prerequisite for individuals' participation is that pathways for participation need to be citizen-centered. For several experts in Switzerland, Greece, Italy, and Norway, there is a rational economic component that should not be neglected. For instance, an energy cooperative's executive manager in Italy points out the advantages of taking sustainable energy actions, such as a discount on the energy bill. Experts in Norway also emphasise that people are constantly manoeuvring towards their advantages and benefits, indicating no feeling of responsibility in society. In other words, the stated problem is that individuals enjoy the benefits but do not want to share the burden. Furthermore, a number of experts in Germany think that the way people participate in the energy transition depends very much on their socioeconomic status. For instance, a CEO of a digital platform for energy

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citizenship projects in Germany mentions the classic German image of prosumerism: A rich white male homeowner who builds a solar power plant on his roof. Similarly, experts in Greece emphasise that people need to have the financial capacity in the first place to benefit from Exikonomo funding to make energy upgrades to their homes. Experts in Bulgaria also refer to this issue by stating certain factors, such as the exceedingly high prices of energy, for citizens' engagement in the energy transition.

"The driver is only economic and not motivational".

INIT5, Italy, Head of energy agency

"[…] Much of the thinking done around innovation tied to the field of energy transition is rigged around some types of economic interests".

INNO2, Norway, Academic expert with expertise in people-centred and gender-sensitive approaches to energy transitions

"[…] So they just want to become members but are looking for a financial investment and hope for a good return […]"

INDE10, Germany, Board of a renewable energy cooperative

In addition to the financial dimension of citizen engagement in the energy field, the majority of the experts in Switzerland believe that citizen participation derives from a combination of different dimensions: monetary interest, beliefs, collective belonging and structural changes. Accordingly, several expert interviewees in Switzerland draw a line between those already convinced about environmental issues and those who are not. For the individuals in the first group, big public conferences, large communication campaigns, public opinion opinion leaders like Greta Thunberg, or cultural products such as the movie "Don't look up" seem efficient for their engagement. Other social groups in Switzerland can be less concerned by the energy transition because it does not always relate to their daily lives and habits or might be contradictory to their lifestyles. For instance, a consultant in an environmental NGO in Switzerland mentions young students with working-class backgrounds perceive Greta Thunberg as an elitist symbol who discourages their aspiration for reaching higher segments of social classes.

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Regarding citizen engagement, experts in several countries point out differences among different groups of their societies. For instance, experts in Norway distinguish between rural and urban citizen engagement. In rural areas, people usually become engaged by means of a concrete case, for example, opposition to a wind energy park. On the other hand, people living in cities in Norway always have the opportunity to get involved with a wide range of topics and activities. Moreover, experts in Norway refer to professional engagement rather than citizen engagement. According to these experts, individuals engage in energy transitions not as citizens but as professionals and workers such as farmers and entrepreneurs. According to expert interviewees in Norway, the reason for this difference is a connection between interest and competence. There are also differences between male and female participation in the energy transition process. A number of experts in Germany state that women face various structural issues (e.g., care work, wealth, and education) and therefore have limited possibilities for participation. In this respect, the board member of a renewable energy cooperative in Germany points out that their network is aware of the issue that women are a minority in energy cooperatives and tries to get in contact with its members to work on this issue. Similarly, experts in Türkiye mention women's structural limitations regarding participation in the energy field. Despite these limitations, Turkish experts also explain some promising developments about women's engagement in Türkiye:

"[…] There are even women's associations in the energy sector […] For instance, female employees are still relatively low in Türkiye's energy sector compared to the energy sector abroad […] I believe that as these examples increase, more women will start to study electrical and energy engineering, electrical and electronics […]"

INTR4, Türkiye, Journalist/Activist

Experts in different countries also indicate several failures of citizen engagement in the energy transition and explain the reasons behind them. An extensive range of legal requirements is considered one of the most important obstacles to initiatives in energy cooperatives and communities in different countries, including Austria, Bulgaria, Germany and Türkiye. A head of the political representation of an energy enterprise in Germany mentions specific examples of failures in terms of energy citizenship such as greenwashing and lobbyism. Accordingly, the national government in Germany was not supportive of subsidising energy citizenship in the last legislation, while the European

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Commission was more open-minded. The same expert also mentions another significant setback for energy citizenship in Germany: the changes in auctioning for wind energy in the Renewable Energy Act (EEG). Energy cooperatives that installed many onshore wind power plants in Germany had to participate in auctions to install new power plants. However, these mechanisms favoured larger energy companies. According to the expert, this led to a massive decline in the new installations of wind energy and energy cooperatives in Germany.

Collective organisations such as energy communities and energy cooperatives contribute to social change by enabling citizens to become active in their energy behaviour within a social context. For example, in Greece, energy communities are perceived as the ideal medium to promote social change in energy with the active participation of citizens in the energy transition. The experts from other countries also mention the role of energy communities:

"Political pressure. And we definitely need to get better and faster. The only way to do that is through broad participation."

INDE6, Germany, Former member of the German parliament (Social party)

"And I believe that initiatives like ours make a contribution to supporting, informing and communicating movements. Energy transition is something fundamentally important - everyone can make a contribution."

INAT5, Austria, Senior Expert in Austrian Energy Cooperation Start-up

"The best way to go through energy transition is involving and activating citizens, along with public and private initiatives […] In this scenario, energy communities could be an appropriate model to make citizens participate in the energy market and, generally, in the energy sector."

INIT6, Italy, Energy cooperative executive manager

"[…] Change can occur through collective action. It requires a "critical mass" of people involved in civil disobedience to make governments take their responsibilities more seriously."

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INCH10, Switzerland, Climate activist

It is worthwhile noting that there is a stronger emphasis on collective actions than individual actions. According to the experts, barriers concerning the engagement of actors are a lack of public interest and awareness, regulatory framework, and legislative barriers. The drivers to achieving citizen engagement can also be categorised as those referring to collective action and those referring to individual action. These themes are categorised under social and individual dynamics. Regarding collective action, the main driving themes are collaboration, cooperation, proper laws, proper managerial decisions, and awareness-raising initiatives for social change, education, and financial incentives. The individual-oriented counterparts are individual carbon footprint tracking, energy efficiency measures, and mentality change.

7. Conclusions and implications.

The discussion presented in this paper explores the different pathways to energy citizenship. Energy citizenship is a dynamic concept, similar to energy transitions, seen as a process. The roles that energy citizens can reach through the individual, collective, and institutional pathways are neither limited nor fixed. The study of the pathways facilitates the discovery and understanding of the roles enabled by each of the pathways. Understanding the holistic approach of energy citizenship pathways supports to identify how and where to intervene with public policy, behavioural or attitudinal adjustments in order to enable more citizens in multiple roles as energy citizens. Especially for those groups that are disadvantaged and do not currently participate in the energy sector.

Increasing the number of citizens involved in more and different energy citizenship roles will support countries' energy transitions. While energy citizenship is achieved or acquired in a variety of ways, knowing the legal, technical, or demographic/social capital individual and collective constraints will allow us to set clear targets for energy citizen participation. There is still a long way to go to increasingly include more citizens in the energy sector, whether by participating, increasing citizen-ownership in renewables, or being active voices in energy transitions.

There are no conclusive studies on the actual percentage of citizens involved in decision-making roles for the energy sector. The assessed literature and studies on current RES ownership and participation showed that although citizen participation and ownership has increased, the goal of having a citizen-driven energy sector where citizens act as the major decision-makers has not yet been achieved. Progress is positive and it will have to be further studied how far-reaching the renewed efforts of the Energy Union with the CEP and RED II are.

Interviews with experts and relevant stakeholders across the EU showed that there is a preference for emphasising the collective actions and benefits of citizens over individual benefits. Also in all assessed countries, barriers were found to be mainly related to the regulatory and legislative side, followed by lack of knowledge or interest in participating.

The citizen action labs implemented by DIALOGUES will allow us to learn more about how to enable and empower citizens in more and different roles across the energy sector in the EU, as well to explore their motives, desires, and behaviours within the energy sector transversely to their sociodemographic individualities.

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