

Review article

Empowering energy citizenship: Exploring dimensions and drivers in citizen engagement during the energy transition

Mehmet Efe Biresselioglu^{a,*}, Muhittin Hakan Demir^b, Berfu Solak^a, Zehra Funda Savas^a, Andrea Kollmann^c, Benjamin Kirchner^c, Berker Ozcureci^a

^a Sustainable Energy Division, Izmir University of Economics, Izmir 35330, Turkey

^b Department of Logistics Management, Izmir University of Economics, Izmir 35330, Turkey

^c Energieinstitut an der Johannes Kepler Universität, Linz 4040, Austria



ARTICLE INFO

Keywords:

Energy citizenship
Energy transition
Citizen engagement
Consumer roles

ABSTRACT

One fundamental aspect of the energy transition involves fostering the active involvement of citizens in the energy system, going beyond their traditional roles as mere "consumers" or "customers." This shift hinges on individuals' perceptions and displays of energy citizenship. While no universal consensus exists, indicators of energy citizenship include increased awareness of energy issues, incorporation of energy considerations into lifestyle choices, and direct participation in the energy system. Despite this acknowledgement, the current literature lacks an overarching conceptual framework for understanding energy citizenship. This study employs a hybrid methodology, merging systematic and integrative literature reviews. The objective is to explain how existing studies conceptualise energy citizenship, outlining key dimensions and drivers in the literature. The findings reveal that drivers of energy citizenship span socio-political, economic, environmental, psychological, and ethical dimensions.

1. Introduction

The energy system gives rights and responsibilities to the public to take a position in the energy transition. According to Devine-Wright (2007), the public used to have a relatively passive role, reflecting individuals as consumers only. In contrast, increasing awareness of social and environmental issues has drawn attention to the involvement of citizens in the energy transition, either at the household or community level, through actions (e.g., community ownership of renewable energy, smart metering of energy and home production (Walker and Devine-Wright, 2008; Warren and McFadyen, 2010; Devine-Wright, 2007; Parkins et al., 2018) and decisions (e.g., citizen participation in energy-related decisions and citizen power to shape energy policy (Hoppe et al., 2015; Schoor et al., 2016; Sarrica et al., 2018). This approach gives the public an active position in the energy system.

Previous research shows that energy policymakers perceive citizens as having limited interest or knowledge in energy transition (Devine-Wright, 2007; Beauchamp and Walsh, 2021). However, this is contradicted by the notion that citizens have the will, skills, or power to actively participate in the energy transition (Mah et al., 2012). The

ability of citizens to engage in energy policy-making largely depends on awareness raising, education, and increasing pro-environmental knowledge and attitudes (Catney et al., 2013; Owens and Drifill, 2008; Alcock et al., 2017). There are several ways to increase public engagement in the energy system, such as dialogue and communication between local citizens and energy planners, fair involvement of citizens in specific energy projects, and opportunities for co-production or self-sufficiency for local citizens (Nye et al., 2010; Walker and Devine-Wright, 2008; Rogers et al., 2008; Ryghaug et al., 2018).

The idea of involving the public as "active rather than passive stakeholders in the energy system", which emphasises the potential of citizens to act according to their rights and responsibilities, gives rise to a critical concept called energy citizenship, originating from Devine-Wright (2007). Citizenship is often considered a binary status passively bestowed on an individual in mutual agreement with an outside entity and refers to a person's legal rights, responsibilities and privileges concerning this entity. However, no entity grants energy citizenship; citizenship in the energy context implies active engagement in an energy system and awareness of energy issues. In the energy system, there is no official citizenship-granting entity. Instead, citizens engage with the

* Corresponding author.

E-mail address: efe.biresselioglu@ieu.edu.tr (M.E. Biresselioglu).

<https://doi.org/10.1016/j.egy.2024.01.040>

Received 22 June 2023; Received in revised form 2 January 2024; Accepted 16 January 2024

Available online 29 January 2024

2352-4847/© 2024 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

energy system throughout their daily lives. As for the legislative framework, the Clean Energy Package (CEP) empowers citizens and positions them at the core of the energy transition. The directives of CEP define the concepts of active consumer, renewables self-consumer, Citizens Energy Communities, and Renewable Energy Communities (REC), aiming to reshape responsibilities and opportunities for citizens within the energy and climate sectors. These concepts aim to redefine the roles of individuals, communities, and broader entities within the energy sector, emphasizing a more participatory and inclusive approach. They aim to promote citizen involvement, responsibility, and opportunities in shaping the energy transition, fostering a more sustainable and community-driven energy landscape in the EU (EU, 2019).

Despite recent standard references in the literature, scholars have yet to agree on a definition of energy citizenship. Nevertheless, energy citizenship is often defined as promoting people's active participation in energy decision-making through conscious choices, making citizens more than traditional energy customers (Watson et al., 2020). According to the DIALOGUES project, energy citizenship is "the degree to which, and the ways in which, the goals of a sustainable energy transition enter into the everyday practices of an individual" (Biresselioglu et al., 2021). However, due to the lack of consensus on its definition or the narrow scope of its meaning, specific barriers arise from the ambiguity of its meaning, such as differences in the conceptualisation of the concept, vague inferences, or under-extension due to the limitation of the meaning, leading to communication challenges. Therefore, providing the literature with a consolidated framework for energy citizenship is essential. This framework provides a comprehensive perspective of energy citizenship and a focused investigation of pertinent dimensions and drivers. Hence, this framework aims at enhancing a better conceptualization and understanding of energy citizenship. Another distinguishing aspect of this framework is that it is solely centred around energy citizenship rather than closely related but different concepts of environmental citizenship, renewable energy adoption, or energy transition.

Energy citizenship is one of the main pillars of the energy transition. Although consumption-based practices are frequently discussed, there is less focus on sufficiency and public service provision as the main pillars of energy transition. Closely related to the pathways of energy citizenship, sufficiency-oriented practices and public service provision are necessary to ensure a successful and sustainable energy transition.

Scholars mainly discuss energy citizenship through a debate on collective and individual perspectives. While individual decisions and actions are the starting point of energy transition movements, they may remain insufficient for a proper transition process. Therefore, energy citizenship might need to go further than an individualistic approach to include collective engagement (Olivadese et al., 2021). Collective engagement with the energy system allows citizens and communities to act on their energy production and consumption in relevant areas such as mobility, leisure activities and food consumption. This situation makes energy citizenship 'subject to collective decision-making as an ecological resource and social necessity' (Lennon et al., 2019).

In light of this discussion, energy citizenship has recently been on the contemporary research agenda. However, the literature lacks a comprehensive review of which dimensions or drivers help to conceptualise and understand energy citizenship. Within the context of energy citizenship, drivers refer to the key factors critical in defining, conceptualizing, or impacting energy citizenship. Furthermore, another particular criticism of the literature is the lack of an in-depth study of the key motivators that encourage people to take action to become energy citizens. To fill this research gap, this article aims to answer the following research questions: (1) *What are the key drivers and issues for conceptualising energy citizenship?* and (2) *What motivates people to act collectively and individually as energy citizens towards a more sustainable future?*

The literature review for this paper consists of the following sections. Section 2 presents the methodological framework of this research and how the scholarship to be analysed is gathered. Section 3 assesses how

energy citizenship has emerged in the literature and how it is developing in contemporary research. Section 4 discusses and analyses the results of the hybrid systematic and integrative literature review using a set of drivers categorised into socio-political, economic, environmental, psychological, and ethical dimensions. Finally, Section 5 highlights the importance of motivational factors for energy citizenship for a sustainable future and concludes the paper.

2. Methodology

The research utilizes hybrid literature review on energy citizenship, whereby specific themes and drivers are identified for assessing and understanding the concept of energy citizenship through coding. The research framework depicting the steps of the methodology is shown in Fig. 1. Although literature review is a key component of the methodology, this research aims to go beyond a review by identifying the dimensions, drivers, key parameters, as well as supporting mechanisms for energy citizenship. This, in turn, provides a theoretical framework for the conceptualization and understanding of energy citizenship.

A literature review is essential to identify the literature's parameters, dynamics and specific enablers or disablers as it offers a synthesised knowledge on the subject (Vom Brocke et al., 2009; Paré and Kitsiou, 2017). It serves various purposes, such as identifying existing discussions, deriving the trends, presenting empirical findings, new theories or frameworks, making suggestions for further research and uncovering the gaps in the literature (Paré et al., 2015; Mangas-Vega et al., 2018; Bradbury-Jones et al., 2019; Pedersen et al., 2020; Quan-Hoang et al., 2020). While there are various approaches to the literature review, including systematic, semi-systematic and integrative reviews (Torraco, 2005; Davis et al., 2014; Liberati et al., 2009; Wong et al., 2013; Harmer et al., 2013; MacDonald et al., 2023), several studies use a hybrid literature review, mixing different types of literature review (Hughes et al., 2016; Machete and Marques, 2021; Turnbull et al., 2023). Based on the purpose and approach of the research, this paper uses a hybrid review comprising systematic and integrative reviews as the methodological framework. Systematic literature review involves a critical assessment of the existing literature to develop a research question and frame the outputs of the review (Boell and Cecez-Kecmanovic, 2015; Barn et al., 2017; Xiao and Watson, 2019). As "being methodical, comprehensive, transparent, and replicable", aiming to avoid any possible bias (Siddaway et al., 2019; Paré and Kitsiou, 2017; Dyba et al., 2007), it requires applying the same level of accuracy throughout the entire review process (Briner and Denyer, 2010). Accordingly, any systematic (quantitative or qualitative) literature review involves (1) identifying a clear research question, (2) determining a review protocol, (3) systematically searching the literature, (4) selecting relevant articles, (5) evaluating their validity and quality, (6) structurally extracting data, (7) analysing and synthesising data and (8) transparently reporting outputs (Gates, 2002; Webster and Watson, 2002; Noordzij et al., 2009; Gomersall et al., 2015; Xiao and Watson, 2019).

The initial research in this study started with a systematic literature review. After identifying the research questions of this study and developing the review protocol and literature review template, systematic searches were conducted as the third step of the systematic literature review. The scientific sources in the systematic review were selected from several academic databases relevant to energy citizenship, such as Web of Science, ScienceDirect, Scopus and ResearchGate. All publications published until June 2023, when the study was conducted, were considered within the year range. The main keywords to delimit the research were: energy citizen, citizen empowerment, individual energy behaviour, inclusivity (of energy system), energy justice, energy poverty, (energy) self-sufficiency, energy democracy, citizen community, energy community, public engagement, energy transition, gender inequalities (in energy transition), gender justice (in energy system), energy decision-making, and prosumerism. However, the search was completed through these keywords without quotation marks. This way,

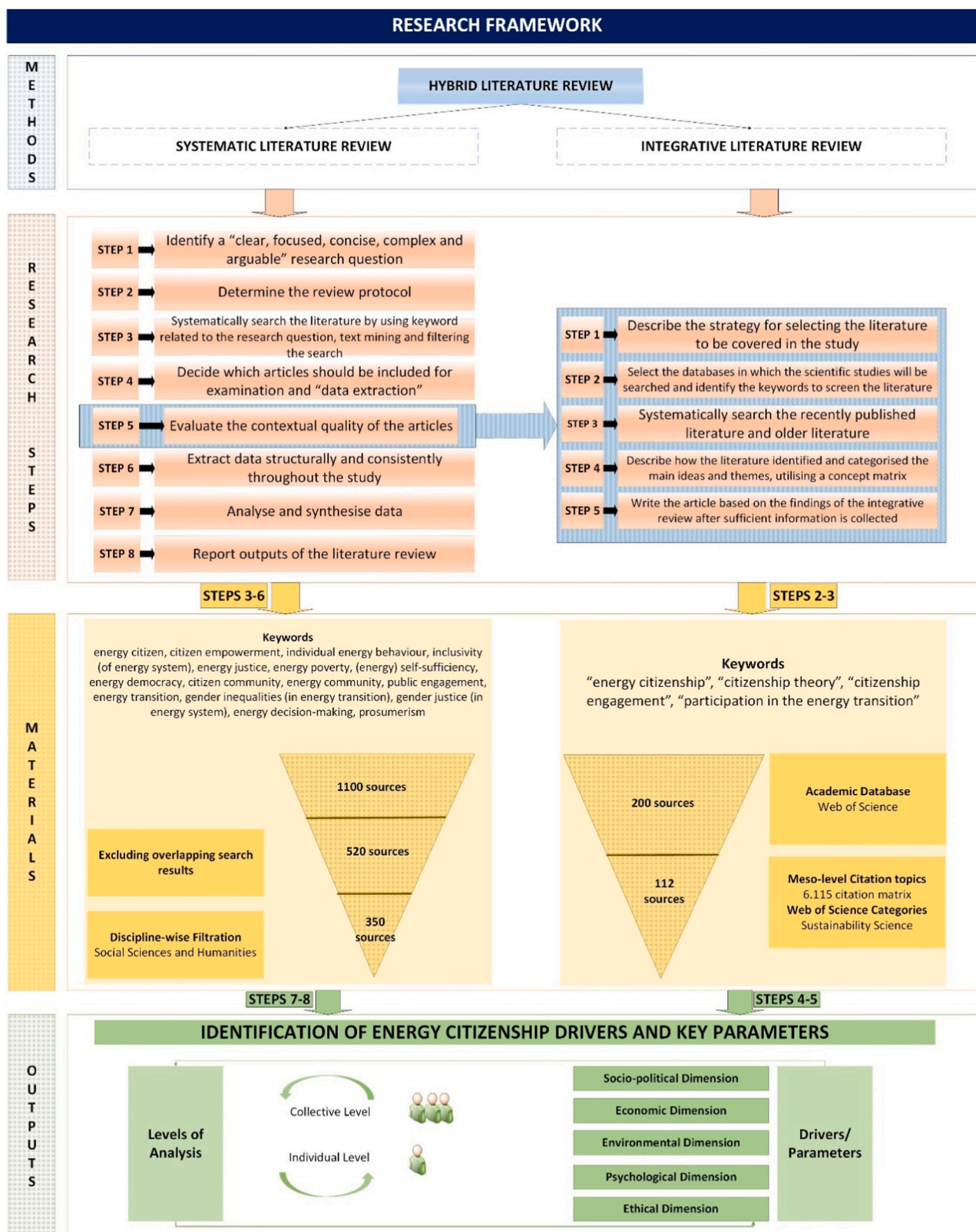


Fig. 1. Research Framework.

a comprehensive systematic literature review was obtained through relevant search results revealing many studies.

The preliminary analysis identified 1100 sources published since the 1980 s, excluding overlapping search results. 520 sources remained following the hand-searched elimination of duplicates simultaneously

occurring in different databases. After the initial screening, the results were filtered according to disciplines and research areas. Among different research fields, the majority of the published studies were under the discipline of Social Sciences Interdisciplinary, such as Environmental Studies and Sciences, Management, Green Sustainable

Science Technology, Energy Fuels, Political Science, Geography, Economics, Psychology, Sociology, Urban Studies, and International Relations (Bireselioglu et al., 2022a; Jansma et al., 2023; Wahlund and Palm, 2022; Lee, 2019; Rasch and Köhne, 2016; Beauchampet and Walsh, 2021; Yeboah and Kaplowitz, 2016). Consequently, 350 sources were selected for analysis in the fourth step based on matching keywords, their relevance to energy citizenship and their potential to discuss important issues, providing an inclusive viewpoint and introducing new concepts to the literature.

A quality assessment of the collected studies in a systematic literature review was completed in the fifth step. However, since "energy citizenship" is a relatively new concept, a systematic literature review conducted only on "energy citizenship" literature remained restricted. In addition, as the concept has recently emerged, no established theoretical framework exists to explain it. This aspect constituted a limitation to the research framework of this study. For this reason, the scope of the review was enlarged by applying for an integrative literature review within the fifth step as an integrative review summarises both experimental and theoretical studies to contribute to developing a theoretical, conceptual framework (Kellogg and Havens, 2003; Clark, 2016; Minatogawa et al., 2018; Boyle et al., 2018; Ofosu-Peasah et al., 2021; Rahimi et al., 2022; McGuire et al., 2022). Hence, the study became a stratified and hybrid research framework, combining systematic and integrative literature reviews. The integrative literature review follows a qualitative study and critiques and synthesises knowledge on a research question by searching various published texts (Snyder, 2019). However, unlike a systematic review, the integrative review uniquely enables the development of new theoretical frameworks, perspectives, or parameters (Whittemore and Knafl, 2005; Torracco, 2005; Callahan, 2010; Toracco, 2016; Cronin and George, 2023). According to Snyder (2019), it serves two functions: to address a mature issue by outlining the knowledge base with critical thinking and reconceptualising a theoretical model. to address a new, emerging topic by providing a preliminary conceptualisation with new parameters (Kalleberg, 2000; Toracco, 2016; Carliner, 2011; Aburn et al., 2016). To achieve transparency in the research, the integrative literature review requires authors to adopt a conceptual structure following steps outlined by Torracco (2005) and endorsed by other studies (Kellogg and Havens, 2003; Clark, 2016; Minatogawa et al., 2018; Boyle et al., 2018): (1) describing the literature selection strategy, (2) selecting the databases and keywords to screen the literature, (3) systematically searching the recently published and older literature, (4) using a concept matrix, describing how the literature identified and categorised the main ideas and themes, and (5) writing the findings of the integrative review after sufficient information is collected.

For conducting the integrative literature review in this study, the outputs of the systematic review were utilised, yet the scope of the review was narrowed to the theoretical level. Contrary to the systematic review conducted in multiple databases, the integrative review was done in Web of Science with filters such as Meso level citation topics, which enable to "refine searching results on a more granular level by choosing from over 300 available Meso level citation topics based on search results", and Web of Science categories under which majority of the studies on the energy citizenship gathered. The main keywords to delimit the scope of the research in the integrative review included "energy citizenship", "citizenship theory", "citizenship engagement", and "participation in the energy transition". However, contrary to the systematic review, the keywords were searched with quotation marks in the integrative review to obtain more specific search results providing a conceptual overview of energy citizenship. The keywords are depicted in detail in Fig. 1.

The preliminary analysis of the integrative review revealed 200 sources published since the 2010 s, and further filtration was made according to the meso-level citation topics and Web of Science categories. Consequently, most of the studies published based on these keywords were under the category of Sustainability Science with a 6.115 citation matrix. The citation matrix provides the number of studies published

and the citations received by these publications. This matrix was used to identify the studies included in the literature review. Hence, 112 studies were utilised for the final analysis. Then, the search results from systematic and integrative reviews were merged. As explained in the steps of the integrative review, it described how the literature identified and categorised the main ideas and themes regarding energy citizenship, utilising a concept matrix in the fourth step of the integrative review. The concept matrix was constructed using the identified themes and clustering the selected studies under these themes. In this way, it enabled us to categorise the themes of energy citizenship. The concept matrix provided five main themes, including socio-political, economic, environmental, psychological, and ethical dimensions under which specific motivators exist to engage in the energy transition as citizens individually and collectively. The results of the systematic review helped extend the sub-themes and contributed to the integrative review to develop a conceptual framework for energy citizenship.

Based on these stages of the systematic and integrative literature reviews, the data for assessing and analysing the energy citizenship approach was extracted and synthesised for this paper. The synthesised data from the literature review shows that energy citizenship can be conceptualised through a set of drivers. As a result, citizens can take action at a collective and individual level towards a more sustainable future, taking advantage of their rights and responsibilities in the context of energy citizenship. Fig. 1 illustrates the research framework used in this study.

3. Evolution of the energy citizenship concept

'Citizenship' describes a citizen's social status and political and legal responsibilities towards the state. In a broad sense, as a thick and multi-layered historical concept, citizenship regulates the relationship between an individual and a political entity (Tilly, 1995). While 'citizenship' has deep roots in the historical context, attempts to harmonise 'citizenship' in energy are pretty recent. The historical epoch that makes citizenship important in the energy sense is the transition from a fossil-based to a renewable-based energy system (Lennon et al., 2019). Such a transition requires social and economic transformation, which is possible in an inclusive context. Energy citizenship thus becomes a necessary condition for climate goals rather than a variant of civic or political 'citizenship'. Devine-Wright (2012) Devine-Wright (2012) conceptualizes energy citizenship as a contrast to society's social and psychological separation from energy issues, arguing that this phenomenon is centralised energy systems and lack of awareness of energy users. In other words, the concept of 'energy citizenship' opposes the idea of the 'patronising representation' of certain groups in energy decision-making, such as a political entity, political elite or policy stakeholders; instead, it supports the empowerment of citizens who have not previously had the opportunity to make a decision or choice (Debaz, 2016).

Energy citizenship is intrinsically different from the traditional concept of 'citizenship'. In the conventional understanding, citizenship grants rights to individuals. In this context, individuals are passive participants. Energy citizenship, however, supports a movement of active citizen engagement that reorganises the collective and political dynamics of the energy system (Isin and Nielsen, 2008). As such, citizens have the power to shape policy, the opportunity to form energy communities, and the ability to contribute to climate goals. The concept of energy citizenship is particularly central in providing a framework and a tool for the actors involved in the profound and systematic transformation of the energy sector, with a focus on an action-oriented approach that derives its logic from the evolving process and the need to strengthen individuals' understanding of their role and how to fulfil it.

No comprehensive, all-encompassing, overarching notion of 'energy citizenship' reflects effective policy and action. The old energy system model saw the emergence of large coal, oil, gas and nuclear power

companies, with expanding power plants and continental and inter-continental distribution networks, as fossil fuel consumption increased. As a result, highly centralised energy systems, managed from the top down by professionals, coexisted with the economy and society.

The energy sector’s transition to a decentralised renewable energy system increases the number of actors. It requires a high level of participation from both the supply and the demand sides. However, the previous energy system model and outdated energy paradigm reflected special interests and political representation that had little patience for new entrants. It, therefore, had a limited perspective on inclusivity.

In contrast to the old, technocratic energy system model, the contemporary approach requires empowering citizens to trigger the energy transition. For example, the European Green Deal and the European Union’s commitment to climate neutrality by 2050 give citizens responsibilities (Wahlund and Palm, 2022). Such responsibilities encourage citizens to become more active in the energy system, where more decentralised and democratic governance is emerging. As a result, previously passive consumers can take responsibility for energy production and consumption, making them more dynamic.

4. Findings and analysis

The state-of-the-art literature review on energy citizenship identifies specific themes and drivers for assessing and understanding the concept

of energy citizenship. These drivers and themes were derived through coding. These include socio-political, economic, environmental, psychological, and ethical drivers. In addition, each dimension has specific factors that motivate people to become energy citizens for a sustainable future, as shown in Fig. 2.

4.1. Socio-political drivers for energy citizenship

The energy transition and sustainable pathways are not only driven by technological innovations but also by socio-political transformations. Therefore, the active participation of people in energy systems, beyond the traditional role of energy consumers, through involvement in energy-related decisions, participation in energy communities or energy prosumerism, is a prerequisite for the energy citizenship framework. Although prosumerism is key for energy transition, the current business models rely on subsidies and are otherwise unviable (Brown et al., 2019). In its original sense, energy citizenship is associated with public acceptance of energy technologies (Kotilainen et al., 2016). However, energy citizenship takes on a new dimension in the context of socio-political drivers. The socio-political dimension of energy citizenship has specific implications for citizen engagement and participation in local, national or international activities related to climate and energy policy. A just energy system motivates individuals and collectives and promotes ‘happiness, welfare, freedom, fairness and due process for

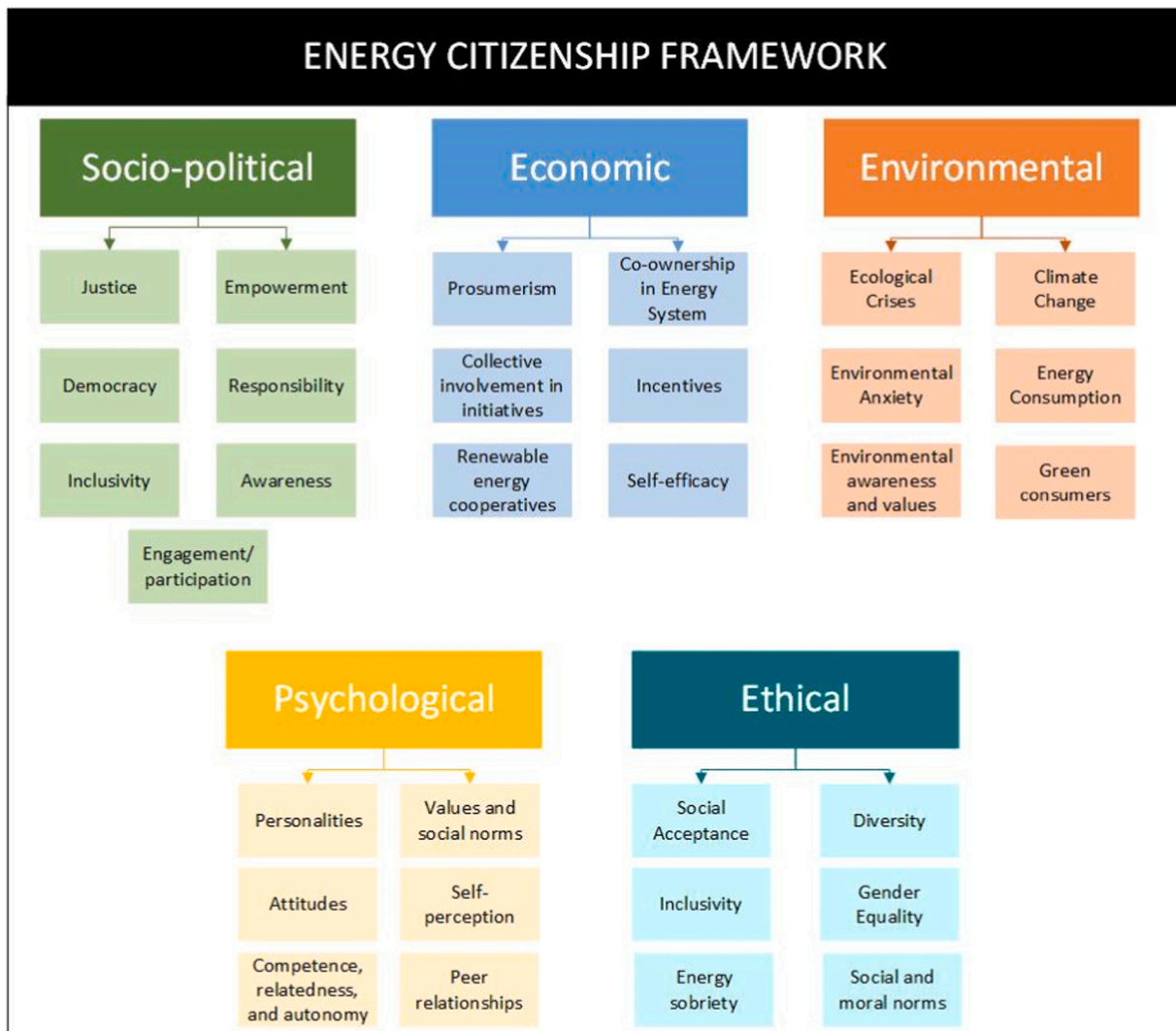


Fig. 2. Energy citizenship framework.

producers and consumers' (Sovacool and Dworkin, 2015). Therefore, it is suggested that individuals are likely to be more enthusiastic about being energy citizens in a just energy system, where the costs or benefits of a particular energy policy are imposed equally on communities without marginalising any particular part of society and where procedures are representative with effective decision-making based on due process. Energy justice has been defined as the fair distribution of 'benefits and costs of energy services' and 'representative and impartial energy decision-making' (Sovacool and Dworkin, 2015). The theory of social justice, introduced by John Rawls, argues that a person should have access to primary goods without considering income, wealth, social status or the opportunities provided. Therefore, justice is essential in equity and fair distribution of 'material outcomes or public goods', referring to fair treatment of individuals (Walker, 2012). Energy citizenship is linked to energy justice based on the distributional, procedural and recognition pillars of the energy justice framework, as citizenship implies equal and fair access to resources without discrimination (Sovacool and Dworkin, 2015; Bosch and Schmidt, 2020; Bartiaux et al., 2018). Hence, energy justice is closely related to the existence and accessibility of energy resources, which is a significant predicate of energy citizenship for two main reasons: First, lack of energy justice implies that the excluded individuals lack many modes for practising energy citizenship. Energy communities being homogeneous or high membership costs are often cited as examples of this phenomenon (Vesseli et al., 2022). Second, households that do not have access to energy resources for their basic needs, such as heating and cooking, are not likely to focus on other aspects related to energy citizenship. A condition for justice is mutual recognition. All citizens should have the right to access energy within the framework of universal socio-economic welfare principles that enable the achievement of contemporary global citizenship standards (Boamah and Rothfuss, 2020; Shyu, 2021). Prosumerism can be perceived as a social construct, contributing to energy citizenship through new energy consumption practices. On the other hand, the concept of prosumerism is also closely connected to energy democracy, justice, and a consensus-based economy (Campos and Marín-González, 2020).

A functioning democratic system provides opportunities for citizens to shape energy policy. Scholars explain energy citizenship through energy democracy in terms of inclusive and transparent decision-making, as well as individual/household participation and ownership (Szulecki and Overland, 2020; Allen et al., 2019; Ruostetsaari, 2020; Elkjaer et al., 2021; Łapniewska, 2019). Energy democracy encompasses several essential aspects, including the distributed form of governance with which energy citizenship is associated (Gonda, 2019; Sarrica et al., 2018; van Zyl-Bulitta et al., 2019). However, the material-based definition of energy citizenship, which reflects citizens as consumers, has a limited scope. Instead, a more meaningful explanation is the distributed form of governance of deliberative democracy, with a decentralised organisation in which individuals interact (i.e., a bottom-up structure rather than hierarchical and top-down decision-making) (Olivadese et al., 2021). In this respect, local community action to improve energy affordability and accessibility is an excellent example of bottom-up initiatives (Forman, 2017; Lacey-Barnacle and Bird, 2018). The literature on energy citizenship provides some examples of community energy projects in Scotland, Spain, Germany and the UK, both to promote citizen engagement in the energy transition and to increase sustainable land use while reducing consumption towards a sustainable future (Bomberg and McEwen, 2012; Becker and Kunze, 2014).

From a democracy and equity perspective, citizens engage in the energy transition through administrative decision-making, political participation or community involvement (Vigoda-Gadot et al., 2008). In this sense, energy citizenship is a collective political engagement in energy awareness, literacy, behaviour and practices (Ingeborgrud et al., 2020). Democratic governance requires the active participation and engagement of individuals and communities within energy systems to achieve decarbonisation goals for a sustainable energy transition

(Mendes et al., 2020; Coy et al., 2021; Mang-Benza, 2021; Caramizaru and Uihlein, 2020; Nakamura, 2017; Mori and Tasaki, 2019; Parkins et al., 2018). Engagement is mainly observed at two levels, namely, the individual level and the political level. At the individual level, the citizen focuses on energy efficiency in the home or workplace. In contrast, at the political level, the citizen engages in local, national or international activities related to climate policy (Radtke, 2014). Furthermore, decarbonisation goals are related to taking personal or collective responsibility to reduce energy consumption, which requires active citizen participation in energy and environmental policies (Kloppenborg and Boekelo, 2019; Nakamura, 2018). An essential driver for taking personal or collective responsibility is 'interconnectedness', which extends the perspective beyond future generations (Guckian et al., 2017). Increasing energy efficiency or reducing energy consumption could be the ways to achieve interconnectedness and depend on the direct involvement of citizens in initiatives that target their attitudes and daily practices (Amadori and Votta, 2021).

Empowering individuals and collectives in energy systems is possible through cooperation between citizens, civil society and local authorities (Haf and Robison, 2020; Heldeweg and Séverine Saintier, 2020). This merges perfectly with the socio-political dimension of energy citizenship. Empowering individuals and communities by raising awareness and responsibility for a green future around a common goal to encourage people to socially engage with the energy system. One example is participation in social protests and movements on energy issues, especially in the energy transition, as collective action (Campos and Marín-González, 2020; Huttunen et al., 2020). The energy citizenship literature tries to explain this situation through 'networking', which allows different actors with different beliefs, social and political motivations and ideas to meet on common ground and engage in collective goals (Della Porta, 2009). In this way, learning becomes much more accessible within a community and paves the way for prosumer collective action (Seyfang and Haxeltine, 2012). Being a prosumer through 'learning' might also be possible with opinion leaders, who become a social image within their social communities to encourage individuals to take similar initiatives to become energy citizens (Kotilainen et al., 2016). Therefore, opinion leadership is an important motivating factor for energy citizenship. The mainstreaming of prosumerism contributes to energy citizenship. The main mechanisms of mainstreaming energy citizenship are identified as standardisation, marketisation, and socialisation (Wittmayer et al., 2021).

In the context of the relationship between social movements and energy citizenship, specific factors such as knowledge production and socio-cultural learning could help encourage individuals to become energy citizens, as they provide individuals with the opportunity to participate in the production of new technologies and experience new governance models (Campos and Marín-González, 2020). Furthermore, new knowledge and socio-political patterns allow individuals and organisations to engage in new collective learning processes and share their experiences and activities towards energy transitions and a sustainable future (Jamison, 2006; Jamison, 2003).

Poverty is a critical issue that undermines energy citizenship, as it hinders the ability of individuals to benefit from the opportunities offered by the energy system. Energy poverty has been on the global agenda since 2005, particularly in the European context, as a critical issue in the academic and policy fields. It is a source of social and environmental injustice (Walker and Day, 2012; Jenkins et al., 2016; Gillard et al., 2017). The term is associated with the concept of 'capability', as it is closely linked to individuals' ability to sustain a good life equitably (Bartiaux et al., 2018). As conceptually outlined by Jenkins et al. (2018), energy poverty and injustice discourage people from engaging with the energy system. Benefits are usually reduced with 'sticks' while 'carrots' are never provided. Therefore, people do not act individually or collectively as 'citizens' in an energy system where they only experience negative impacts.

Inequalities in allocating and distributing energy resources and

services ultimately lead to energy poverty, a topic frequently addressed in the energy citizenship literature (Middlemiss, 2017; Bouzarovski and Simcock, 2017; Devine-Wright, 2007; Mullally et al., 2018). Barriers to energy justice include a lack of access to electricity, clean fuels and the right to access energy. In such an energy system, people feel more desperate and refrain from defining themselves as energy citizens because they are not treated equally.

Fig. 3 illustrates the socio-political dimension of energy citizenship.

4.2. Economic drivers for energy citizenship

The economic dimension of energy citizenship is primarily associated with the involvement of individuals in collective initiatives, which frames citizens as individual actors for whom financial considerations are essential in changing economic behaviour (Lennon et al., 2019). Appropriate incentives (or benefits) would be the first logical step in ensuring the uptake and acceptance of new energy technologies (Devine-Wright, 2012). Individuals are attracted to join communities and take on the role of energy citizens by possibly engaging in the energy system economically (Vesnic-Alujevic et al., 2016). Although purely economic motivations are not the only motivations for energy citizenship, the economic dimension frequently acts as the trigger or a co-benefit for motivating energy citizenship. Economic and behavioural changes contribute to low-carbon transitions by engaging in energy

co-production efforts. Examples include joining renewable energy co-operatives and acting as prosumers, adopting micro-generation technologies, and localising energy generation (Webb, 2012; Lennon et al., 2019). As they offer citizen participation in the energy system, low-carbon energy transition initiatives increase citizen engagement, including the economic dimension (Lennon et al., 2019). Therefore, the shift from the previous individualistic and purely economic approach to energy systems to a deeper level of social engagement fosters economic engagement.

Energy communities, which allow individuals to exist in the clean energy transition and actively participate in producing, using, and sharing energy, are another way to define energy citizenship (Moncecchi et al., 2020). Such participation offers interactions between individuals and technology and many roles individuals can take on, including 'users, customers, protestors, advocates, and prosumers' (Ryghaug et al., 2018). Community engagement as an act of energy citizenship is associated with higher levels of self-efficacy in the economic sense at both individual and community levels and financial benefits for community members (Devine-Wright, 2012). In addition, such participation in the energy market entails a better understanding of being a consumer. Under a more ambitious definition of energy citizenship emphasising prosumerism, citizens can become 'co-producers, co-investors and consequently co-owners of energy systems' (Fitzpatrick, 2014). Significant barriers to prosumerism include lack of tailored policies,

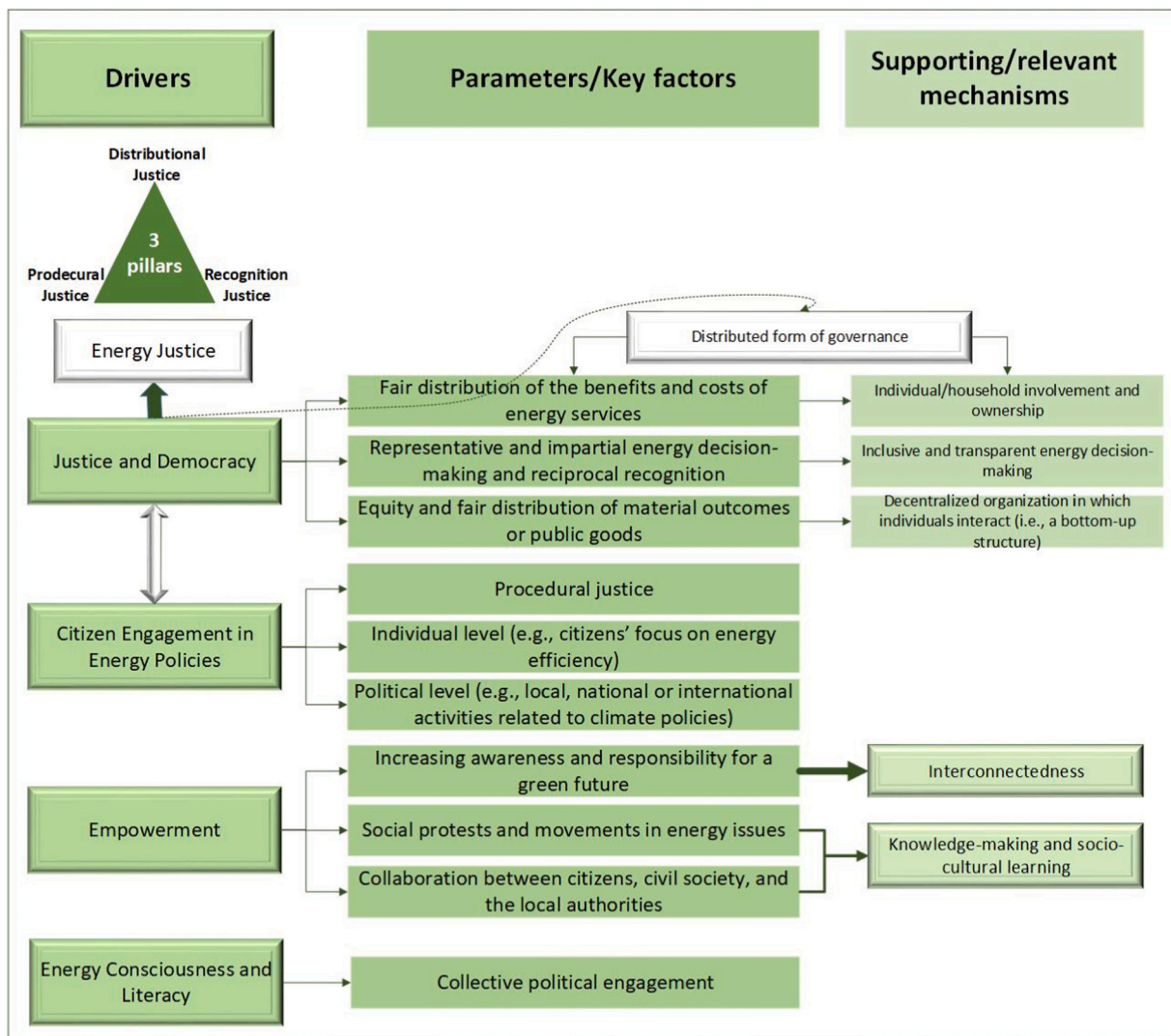


Fig. 3. Socio-political dimension for energy citizenship.

administrative and organisational flaws, and the legislation lagging behind the progress of the energy transition (Horstink et al., 2020). Prosumerism can also be considered as a mode of energy citizenship developed alongside the transformation of energy systems, becoming more decentralised, smart, and with increasing share of renewables (Brown et al., 2020). As a social construct, it contributes to energy citizenship through new energy consumption practices (Campos and Marín-González, 2020; Parag and Sovacool, 2016). However, for such initiatives to be sustainable, they need to be economically and financially sound. Therefore, they need to be based on viable business models. The business models developed for prosumerism are yet far from being uniform. They are rather practiced by different market stakeholders including local governments and market communities. Hence, the attribution of value to prosumerism is different for varying stakeholders and varying business models (Brown et al., 2020).

Economic engagement can be seen in examples such as the opportunity for energy communities to benefit from collaborating as self-consumers, feed-in tariffs (FITs), certificate mechanisms, collective energy consumption systems, acting as market aggregators and selling surplus energy (Campos et al., 2020; Wahlund and Palm, 2022). Cases such as the lack of incentives to set up collective self-consumption projects and the reduction or elimination of existing incentives are seen as barriers to promoting prosumerism and energy citizenship (Campos et al., 2020). Although prosumerism is key for energy transition, the current business models rely on subsidies and are otherwise unviable (Brown et al., 2019).

With a similar understanding, Kampman et al. (2016) focus on prosumerism and consider energy citizens as prosumers who generate energy, maintain flexibility in supply and demand, and store energy in times of oversupply. From this perspective, prosumer energy citizens are not limited to energy-consuming behaviour but have a higher potential for participation and ethical-political engagement in energy transitions (Damgaard, 2021). Beyond being economic actors, prosumers are 'political agents in a changing environment' (Szulecki, 2018). It reflects energy citizens as individuals with capacities for additional activities, equal rights and duties, and active participation in shaping energy policy

beyond their function as consumers in economic terms (Vesnic-Alujevic et al., 2016).

Nevertheless, citizens experience several economic obstacles toward energy citizenship, hindering their active participation in the energy transition. Accordingly, governments' inadequate economic assistance to citizens prevents them from investing in smart energy technologies (Maswabi et al., 2021). In this sense, "financial uncertainty" constitutes a hurdle for citizens to become active in the energy transition (Farla et al., 2010). Furthermore, "lower socio-economic" groups generally lack knowledge regarding the energy transition and citizenship in several countries, creating unfair economic and social conditions among individuals (Biresselioglu et al., 2022b).

Fig. 4 reveals the economic dimension of energy citizenship at individual and collective levels. The closely related terms of prosumerism and co-ownership differ because the former refers to the individual or the community involved in consumption and production. In contrast, the latter focuses on joint ownership, possibly by the members of a community of production systems. Cooperatives, on the other hand, involve individuals or communities who join forces to engage in certain types of activities, such as energy production.

4.3. Environmental drivers for energy citizenship

Environmental degradation threatens individuals to sustain everyday life since it creates anxiety as a natural consequence of the 'permanent fear of impending disaster' (Elgaaied-Gambier and Mandler, 2021). Furthermore, environmental concern mainly results in individuals' lack of faith in the future (Cunsolo and Ellis, 2018). Therefore, the growing anxiety confers moral responsibility on individuals to take any action against environmental degradation. In other words, ecological concerns for the adverse effects of fossil fuels on nature and man-made natural disasters, climate crisis and eagerness to protect the environment for future generations are among the most significant behavioural drivers behind energy citizenship (Couture et al., 2014). In this sense, these environmental concerns are the main drivers for citizens to take individual or collective action to participate in energy

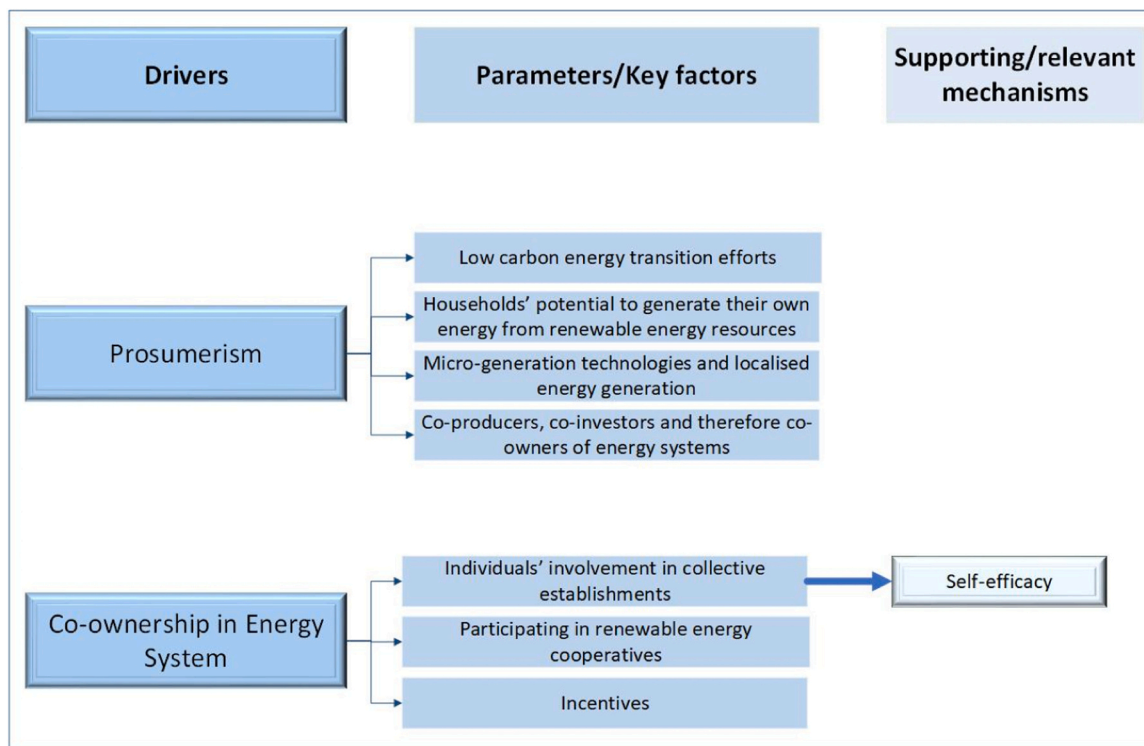


Fig. 4. The economic dimension of energy citizenship.

systems.

Environmental anxiety, ecological crises, and climate change raise individuals' environmental awareness and efforts to be involved in the energy transition. Various studies argue that increasing environmental concerns are one of the significant reasons for the rise of 'ecologically favourable consumer behaviour' and 'green consumers' (Laroche et al., 2001; Balderjahn, 1988). Furthermore, the same concerns motivate individuals to take individual or collective action to become energy citizens. Numerous researchers demonstrate the correlation between increasing environmental awareness and the prosumer role of citizens (Kotilainen et al., 2016; Schall, 2020). For example, Schall's (2020) study, based on a survey of private investors in renewable energy (RE) in Germany, shows that the more pro-environmental solid values an individual has, the more likely he or she is to invest in RE.

Similarly, Rickerson et al. (2014) argue that an individual's pro-environmental values are one of the key motivations for becoming a solar photovoltaic (PV) prosumer. Moreover, various studies show that environmental concerns influence individuals' decisions to invest in socially responsible retail investments (SRI) and RE projects (Beal and Goyen, 1998; Rosen et al., 1991; Radtke, 2014). In this sense, citizens who view energy as an 'ecological resource' rather than a 'commodity' (Lennon et al., 2019) will likely play an active role in the energy sector.

Considering social and environmental responsibilities, several scholars see energy citizenship as a component of ecological citizenship, referring to the energy behaviour of ecologically aware individuals in the name of an environmentally friendly future (Kenis, 2016; Islar and Busch, 2016). In this sense, individuals become community members, and their commitment and exercise of their rights, entitlements and duties contribute to environmental protection (Pohjolainen et al., 2021). In other words, energy citizenship is understood as citizens' social and environmental responsibility (i.e. collective responsibility) rather than their passive position (Beauchamp and Walsh, 2021; Cantoni et al., 2018; Lee, 2019). This perspective is mainly linked to the assumption that the energy transition could be realised through collective responsibility for climate change and (joint) energy actions, including

creating community renewable energy projects (Campos and Marín-González, 2020; Sarrica et al., 2014). In this sense, it is argued that empowering energy citizens to participate in collective energy actions contributes significantly to sustainable energy transitions (Lennon et al., 2020). In other words, individuals' investment in renewable energy projects and participation in collective actions, including creating energy cooperatives, are part of their identity as environmental and energy citizens. Fig. 5 shows the environmental dimension of energy citizenship.

4.4. Psychological drivers for energy citizenship

Individuals' psychological characteristics have long been critical explanatory variables for their pro-environmental attitudes and behaviours. The relationship between individuals' pro-environmental actions and their psychological attributes, such as personality, attitudes, values, and self-perceptions, has been widely studied. (Barr and Gilg, 2006; Heath and Gifford, 2006; Dietz et al., 2007; Schultz et al., 2007). Several scholars have shown that environmentally friendly behaviour and socially responsible retail investment (SRI) cannot be explained only by the socio-demographic characteristics of individuals (e.g. gender, age, education or marital status) (Samdahl and Robertson, 1989; Oreg and Katz-Gerro, 2006; Williams, 2007; Gamel et al., 2016). In this sense, it has been found that psychological characteristics need to be considered when analysing pro-environmental and socially responsible behaviour (Straughan and Roberts, 1999; Getzner and Grabner-Kräuter, 2004; Nilsson, 2008).

Similarly, the psychological characteristics of individuals are among the significant factors for their prosumer behaviour and active participation in the energy transition. Accordingly, energy citizenship and related behaviours are everyday practices derived from intra-individual, inter-individual or external processes (Belaïd and Joumni, 2020). For example, several studies investigating SRI in Germany have pointed to the importance of psychological motivations for individuals' SRI decisions (Dorfleitner and Utz, 2014; Holstenkamp and Kahla, 2016;

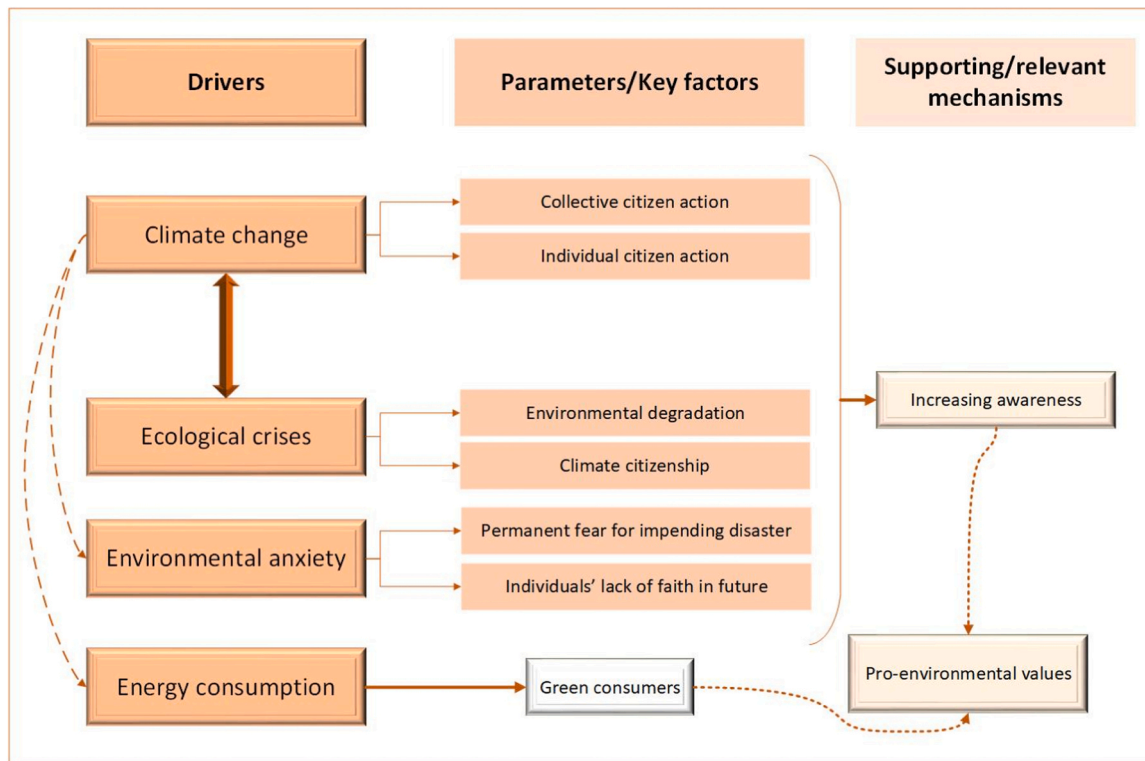


Fig. 5. The environmental dimension of energy citizenship.

Williams, 2007). Furthermore, psychological reasons for individuals' prosumer actions have also been linked to their 'intrinsic motivations'. In this sense, self-desire for innovation, interest and wonder are among the intrinsic motivations for individuals to be active prosumers in energy systems (Kotilainen et al., 2016). External motivations for pro-environmental attitudes are also studied in the literature on behavioural change. Accordingly, the diffusion of innovations (DOI) theory argues that environmental behaviours are based on the dissemination of new knowledge among individuals via "media" and "person-to-person" communication tools (Wolske et al., 2017).

The literature has also focused on people's significant psychological needs, including "competence, relatedness and autonomy", to explain their behavioural changes (Ryan and Deci, 2000). In this direction, Kotilainen et al. (2016) showed that 'intrinsic' drivers, 'self-efficacy', 'self-control', 'competence', and 'peer relationships' were significant factors in individuals' decision to participate in the 'smart grid' innovation ecosystem.

Concerning individuals' pro-environmental and sustainable energy habits, the literature has also focused on the role of three sets of personal characteristics. First, Stern et al. (1995) and Corraliza and Berenguer (2000) classified personal value traits from 'egoistic' to 'altruistic' and from 'conservative' to 'open to change' and showed that those who were 'altruistic' and 'open to change' were more likely to engage in pro-environmental activities. Secondly, the work of Schwartz (1992), Dunlap and Van Liere (1978), and Dunlap et al. (2000) analysed the relationship between environmental attitudes and personal values according to whether these values were biocentric or anthropocentric. Empirical research has shown that biocentric individuals are more likely to engage in pro-environmental behaviour. Third, pro-environmental behaviour was related to ecocentrism and technocentrism (O'Riordan, 1985). In this sense, while ecocentrists believe in the cooperation between humans and nature to overcome environmental problems, technocentric see technology as a primary factor in dealing with environmental crises (Barr, 2003).

In line with the approaches above, significant behavioural theories

examine the reasons for pro-environmental attitudes. One is the value-belief-norm (VBN) theory of movement support (Stern et al., 1999), which argues that pro-environmental actions are derived from personal core values and beliefs. According to this theory, individuals may feel 'obliged' to engage in pro-environmental activities if they believe that valued objects are in danger and that their behaviour can overcome the challenges (Stern et al., 1999). The theory of planned behaviour (TPB) is another significant approach for analysing pro-environmental attitudes (Ajzen, 1991; Wolske et al., 2017). Accordingly, pro-environmental behaviours are derived from rational calculations of individuals, including their "attitudes", "subjective norms", and "perceived behavioural control" (Yuriev et al., 2020). Hence, any environmentally-friendly behaviours are closely related to pragmatic considerations and the perceived contextual reality of individuals (Yuriev et al., 2020).

Fig. 6 illustrates the psychological dimension of energy citizenship at the individual and collective levels.

4.5. Ethical drivers for energy citizenship

The ethical dimension of energy citizenship considers social and moral norms, energy sobriety, social acceptability and diversity, race, age, minority status, socio-economic status, vulnerable groups, inclusivity and gender equality.

The concept of energy sobriety has been widely studied in the literature on environmental politics and philosophy (Arnsperger and Bourg, 2014; Arnsperger and Bourg, 2017; Pelluchon, 2017, 2018; Vilalba and Semal, 2018). Accordingly, it focuses on the idea that ecological citizenship requires self-limitation of energy consumption and voluntary reduction of one's carbon footprint Bourban (2022). Therefore, energy sobriety and the ethical dimension of energy citizenship are highly related to 'intrinsic motivation' and 'extrinsic motivation' to act morally in a socially acceptable way (Kotilainen, 2016). Hopper and Nielsen (1991) found that people who felt ethically obliged to act following 'environmental needs' were more likely to adopt

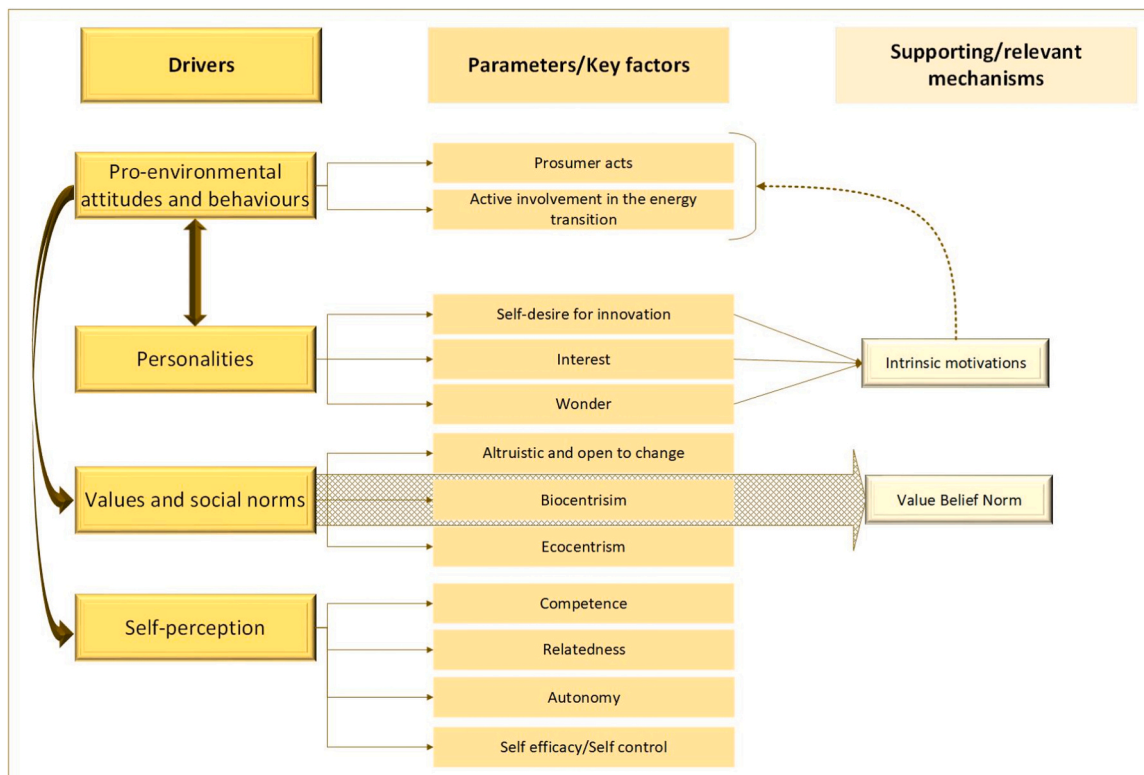


Fig. 6. The psychological dimension of energy citizenship.

long-term pro-environmental habits. In this context, making pro-environmental decisions and investments is associated with seeking the benefits of others and nature without personal gain. Similarly, De Young (1985–1986); De Young and Kaplan (1985–1986) showed that the 'instinctive' satisfaction of pro-environmental behaviour is a notable factor in the self-limitation of consumption. On the other hand, Chan (1998, 2001) and Tucker (1999) emphasised the importance of social pressure as an 'extrinsic' driver of pro-environmental behaviour.

The role of inclusiveness as an ethical part of energy citizenship has also been extensively studied in the literature. Several scholars describe energy citizenship as social acceptance in energy decision-making. Although the concept of social acceptance was not considered until the 1990 s, and the decision-making process in the energy sector belonged exclusively to politicians, local authorities and energy companies (Bianchi and Ginelli, 2018), since then, this concept has become an essential scientific endeavour of numerous scholars. Suboticki et al. (2019) point out that people live in a diverse society, which requires considering a range of views regarding gender, social status, ethnicity and geographical distribution. Similarly, Wüstenhagen et al. (2007) describe social acceptance through socio-political, community and market acceptance through three interrelated elements. This definition also emphasises the role of local communities in reaching an agreement and 'full acceptance' of the energy system.

In parallel with inclusivity and social acceptance, energy citizenship also includes the gender dimension, highlighting gender equality issues in the energy decision-making process and including the voices of different genders in policy formulation. It has been argued that the gender dimension is a *sine qua non* for a just and democratic energy

system (Buechler et al. (2020)).

Gram-Hanssen et al. (2017); Johnson et al. (2020); Lieu et al. (2020); Bell et al. (2020); Batel (2020)). However, diversity extends beyond gender to sensitive issues such as race, age, minority status, socio-economic status or vulnerable groups. Furthermore, from an ethical perspective, all energy citizens, regardless of their socio-economic status or identity, should have equal rights to participate in energy decision-making and access energy services (Longo et al., 2020). Fig. 7 illustrates the ethical dimension of energy citizenship at the individual and collective levels.

5. Conclusion and policy implications

Environmental concerns arising from global warming and climate change require the adoption of new pathways to a sustainable future. In this sense, energy transition is at the heart of a sustainable future. However, in the old technocratic energy system model, citizens were seen as passive consumers, subject to top-down decision-making, particularly regarding the public acceptance of energy technologies. On the contrary, the contemporary understanding of energy transition allows individuals, households or organisations to further engage in the energy system with a bottom-up approach as consumers, prosumers or protesters, making them 'energy citizens'.

The citizenship approach to energy transition is relatively new in the literature. It aims to transform individuals, households, or organisations from passive energy consumers to active energy citizens who will be part of a decentralised energy system. Energy citizenship could, therefore, be defined as the extent to which and how the goals of a sustainable energy

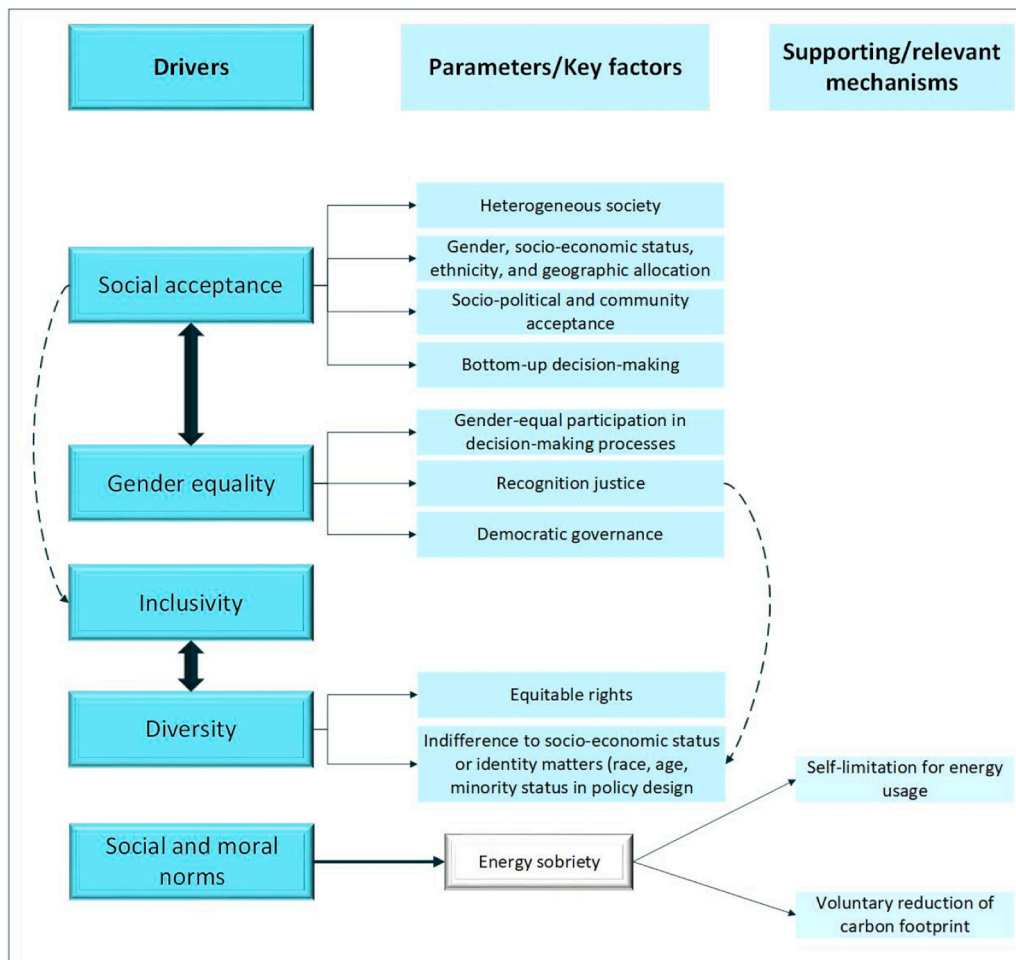


Fig. 7. Ethical dimension for energy citizenship.

transition are incorporated into the everyday practices of individuals. Thus, energy citizenship refers to citizens' willingness to participate in a just and sustainable energy transition.

Energy citizenship, sufficiency, and public service provision are among the main pillars of energy transition. Sufficiency-oriented practices that extend beyond energy conservation face significant challenges in the growth-driven consumer society. These practices involve reducing overall material, land, and natural resource usage. However, they encounter barriers due to entrenched societal beliefs. Moreover, economic systems are built on continuous growth, promoting consumption for profit. This growth-centric model makes it difficult for sufficiency-oriented practices to gain traction as they challenge established economic paradigms (Vesseli et al., 2022).

On the other hand, public service provision serves as the lifeblood of rural communities, contributing significantly to their success, sustainability, and resilience. These services encompass essential aspects such as healthcare, education, public safety, and more. They play a critical role in community health, education, public safety, social cohesion and shared values, and a sense of place and social capital (Reimer, 2002; Sullivan et al., 2014; Halseth et al., 2018).

The studies reviewed under the adopted hybrid research framework, which combines systematic and integrative literature review, show that the concept of energy citizenship can be conceptualised through several drivers, including socio-political, economic, environmental, psychological and ethical. Each dimension explains and contextualises energy citizenship with different factors that motivate people to take initiatives towards a sustainable future and become energy citizens.

The socio-political dimension explains energy citizenship through democracy, equity, inclusiveness, fair engagement, empowerment and social responsibility. In this sense, the socio-political drivers encourage citizens to participate in the governance of the energy system. The literature shows that a just and democratic energy transition ensures citizens' individual and collective involvement in the decision-making process and their active participation in energy governance. In this sense, individual awareness raising, socio-cultural learning, recognition, networking and active cooperation of individuals with civil society and local authorities are important elements of the pathways to energy citizenship. As the concept of energy citizenship is evolving, the exploration of the pathways of energy citizenship is naturally expected to evolve from focusing on a more mainstream perspective that aims to establish the initial framing to a more comprehensive and covering perspective that includes, for instance, pathways corresponding to resilience rather than environmental reasons.

The economic dimension of energy citizenship is mainly concerned with prosumerism, empowerment, self-sufficiency, energy communities and cooperatives, and financial gain. In this respect, low-carbon energy transition initiatives, the establishment of energy communities and a deeper level of social interaction are essential elements of the economic dimension of energy citizenship. It has also been argued that the interaction between individuals and technology and the participation of individuals in collective prosumer projects are likely to foster citizens' economic and political engagement with energy systems.

From an environmental perspective, energy citizenship is primarily driven by environmental awareness and consciousness, responsibility, pro-environmental beliefs and behaviours, and green consumerism, mainly by environmental anxiety, ecological crises and climate change. Furthermore, empirical research shows that the more environmentally aware individuals are, the more likely they are to become prosumers by investing in renewable energy projects. In this respect, environmental responsibility and ecological concerns are essential drivers behind citizens' decisions to participate in individual and collective energy actions.

The psychological drivers of energy citizenship include certain factors such as egoistic and altruistic values, openness to change, biocentric and anthropocentric values, morality, curiosity, interpersonal trust and social interactions, and peer effect. The literature shows that the psychological characteristics of individuals explain their pro-

environmental attitudes and behaviours. For example, in contrast to the economic drivers, which motivate people to participate in the energy transition mainly to gain financial benefits through engagement in energy communities and prosumerism, the environmental and psychological drivers of energy citizenship complement each other in that people are driven by factors such as environmental awareness and consciousness, consumer willingness to pay more for environmentally friendly options, responsibility, and moral and social norms.

The ethical drivers of energy citizenship are social and moral norms, energy sobriety, social acceptance and diversity, looking at race, age, minority status, socio-economic status, vulnerable groups, inclusiveness and gender equality. In this sense, self-limitation of energy consumption and voluntary reduction of carbon footprints are closely related to the ethical aspect of energy citizenship. Accordingly, intrinsic and extrinsic motivations are relevant to the ethical dimension of pro-environmental choices. More importantly, inclusiveness and social acceptance have been widely studied as ethical aspects of energy citizenship. In this respect, the literature shows that gender equality and including all vulnerable groups in the energy transition are prerequisites for an ethical understanding of energy citizenship.

Analysis of the framework for energy citizenship can contribute to formulating policies to foster energy citizenship, hence supporting energy citizenship. To begin with, the developed framework demonstrates that the policymaking process needs to explicitly consider the socio-political, environmental, psychological, and ethical dimensions in addition to the economic dimension of energy citizenship. National policies must be adapted to support the provisions in the Clean Energy for All Europeans Package developed to enhance citizens' engagement in the energy system as active consumers, renewables, self-consumers, or participants in Citizens Energy Communities and Renewable Energy Communities. Policies need to pave the way so that energy communities include and involve a more diverse range of participants, ensuring that voices from different demographics, socioeconomic backgrounds, and perspectives are heard and considered. Establishing the legislative and institutional mechanisms to enable citizens' participation in decision-making and action regarding energy matters also needs to be a priority for policymaking.

The analysis of the framework of energy citizenship also reveals the significance of distributional justice, facilitated through recognitional and procedural justice. Accordingly, for a fair distribution of resources, access to energy resources, and inclusivity, policies need to be developed towards recognising and respecting diverse identities and ensuring fair and just procedures in allocating resources or benefits.

This research aims to provide a comprehensive coverage of pathways for energy citizenship. However, it also acknowledges the evolving nature of energy citizenship and that the exploration of pathways related to energy citizenship eventually needs to be reevaluated. Hence, this research establishes a foundational understanding or framing of the concept from a mainstream perspective, which is foreseen to evolve into a more diverse and comprehensive perspective.

CRediT authorship contribution statement

Biresselioglu Mehmet Efe: Writing – review & editing, Writing – original draft, Supervision, Resources, Project administration, Methodology, Investigation, Conceptualization. **Demir Muhittin Hakan:** Writing – review & editing, Writing – original draft, Validation, Supervision, Resources, Investigation, Conceptualization. **Solak Berfu:** Writing – original draft, Visualization, Validation, Investigation. **Savas Zehra Funda:** Writing – review & editing, Writing – original draft, Visualization, Validation, Investigation. **Kollmann Andrea:** Writing – original draft, Resources, Project administration, Investigation. **Kirchler Benjamin:** Writing – original draft, Validation, Investigation. **Ozcareci Berker:** Writing – review & editing, Writing – original draft, Validation, Investigation.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

Acknowledgements

This work is a part of DIALOGUES project funded by the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement No. 101022585.

References

- Aburn, G., Gott, M., Hoare, K., 2016. What is resilience? An integrative review of the empirical literature. *J. Adv. Nurs.* 72 (5), 980–1000. <https://doi.org/10.1111/jan.12888>.
- Ajzen, I., 1991. The theory of planned behavior. *Organ. Behav. Hum. Decis. Process.* 50 (2), 179–211.
- Alcock, I., White, M.P., Taylor, T., Coldwell, D.F., Gribble, M.O., Evans, K.L., Corner, A., Vardoulakis, S., Fleming, L.E., 2017. Green 'on the ground but not in the air': Pro-environmental attitudes are related to household behaviours but not discretionary air travel. *Glob. Environ. Change* 42, 136–147. <https://doi.org/10.1016/j.gloenvcha.2016.11.005>.
- Allen, E., Lyons, H., Stephens, J.C., 2019. Women's leadership in renewable transformation, energy justice and energy democracy: redistributing power. *Energy Res. Soc. Sci.* 57, 101233 <https://doi.org/10.1016/j.erss.2019.101233>.
- Amadori, M., Votta, M., 2021. SDGs and the engagement of EU citizens: the role of behavioral science in the energy transition. *Resour. Environ. Economics* 3 (1), 239–244. <https://doi.org/10.25082/ree.2021.01.003>.
- Arnsperger, C., Bourg, D., 2014. Sobriété volontaire et involontaire. *Futuribles* 403, 43–57.
- Arnsperger, C., Bourg, D., 2017. *Écologie intégrale: Pour une société permacirculaire*. Presses Universitaires de France.
- Balderjahn, I., 1988. Personality variables and environmental attitudes as predictors of ecologically responsible consumption patterns. *J. Bus. Res.* 17 (1), 51–56.
- Barn, B., Barat, S., Clark, T., 2017. Conducting systematic literature reviews and systematic mapping studies. *Proc. 10th Innov. Softw. Eng. Conf.* 212–213.
- Barr, S., 2003. Strategies for sustainability: citizens and responsible environmental behaviour. *Area* 35 (3), 227–240. <https://doi.org/10.1111/1475-4762.00172>.
- Barr, S., Gilg, A., 2006. Sustainable lifestyles: framing environmental action in and around the home. *Geoforum* 37 (6), 906–920. <https://doi.org/10.1016/j.geoforum.2006.05.002>.
- Bartiaux, F., Vandeschrick, C., Moezzi, M., Frogneux, N., 2018. Energy justice, unequal access to affordable warmth, and capability deprivation: a quantitative analysis for Belgium. *Appl. Energy* 225, 1219–1233. <https://doi.org/10.1016/j.apenergy.2018.04.113>.
- Batel, S., 2020. Research on the social acceptance of renewable energy technologies: past, present and future. *Energy Res. Soc. Sci.* 68, 101544 <https://doi.org/10.1016/j.erss.2020.101544>.
- Beal, D., Goyen, M., 1998. 'Putting your money where your mouth is' A profile of ethical investors. *Financ. Serv. Rev.* 7 (2), 129–143.
- Beauchamp, I., Walsh, B., 2021. Energy citizenship in the Netherlands: the complexities of public engagement in a large-scale energy transition. *Energy Res. Soc. Sci.* 76, 1–9. <https://doi.org/10.1016/j.erss.2021.102056>.
- Belaïd, F., Joumni, H., 2020. Behavioral attitudes towards energy saving: empirical evidence from France. *Energy Policy* 140, 111406. <https://doi.org/10.1016/j.enpol.2020.111406>.
- Bell, S.E., Daggett, C., Labuski, C., 2020. Toward feminist energy systems: why adding women and solar panels is not enough. *Energy Res. Soc. Sci.* 68, 101557 <https://doi.org/10.1016/j.erss.2020.101557>.
- Bianchi, A., Ginelli, E., 2018. The social dimension in energy landscapes. *City, Territ. Archit.* 5 (1) <https://doi.org/10.1186/s40410-018-0085-5>.
- Biresellioglu, M.E., et al. (2022b). The Experts' Perspective on Building Local Energy Citizenship. [online] Available at: <https://cordis.europa.eu/project/id/101022585/results> (Accessed: 15.11.2023).
- Biresellioglu, M.E., Demir, M.H., Solak, B., Turan, U., 2022a. Understanding the dynamics and conceptualisation of environmental citizenship and energy citizenship: Evidence from the existing literature. *Front. Energy Res.* 10, 1–20. <https://doi.org/10.3389/fenrg.2022.1018035>.
- Biresellioglu et al. 2021. DIALOGUES Integrated Research White Paper – Version 1 [online] Available at: https://www.dialoguesproject.eu/public_result/d2-1-dialogue-s-integrated-research-white-paper-version-1/ (Accessed: 20 November 2023).
- Boamah, F., Rothfuß, E., 2020. Practical recognition' as a suitable pathway for researching just energy futures: seeing like a 'modern' electricity user in Ghana. *Energy Res. Soc. Sci.* 60, 101324 <https://doi.org/10.1016/j.erss.2019.101324>.
- Boell, S.K., Cecez-Kecmanovic, D., 2015. On being 'systematic' in literature reviews in IS. *J. Inf. Technol.* 30 (2), 161–173. <https://doi.org/10.1057/jit.2014.26>.
- Bombard, E., McEwen, N., 2012. Mobilizing community energy. *Energy Policy* 51, 435–444. <https://doi.org/10.1016/j.enpol.2012.08.045>.
- Bosch, S., Schmidt, M., 2020. Wonderland of technology? How energy landscapes reveal inequalities and injustices of the German energiewende. *Energy Res. Soc. Sci.* 70, 101733 <https://doi.org/10.1016/j.erss.2020.101733>.
- Bourban, M., 2022. Ethics, Energy Transition, and Ecological Citizenship. In: Letcher, T. M. (Ed.), *Comprehensive Renewable Energy*, 9. Elsevier, pp. 204–220. <https://doi.org/10.1016/b978-0-12-819727-1.00030-3>.
- Bouzarovski, S., Simcock, N., 2017. Spatializing energy justice. *Energy Policy* 107, 640–648. <https://doi.org/10.1016/j.enpol.2017.03.064>.
- Boyle, T., Grieshaber, S., Petriwskyj, A., 2018. An integrative review of transitions to school literature. *Educ. Res. Rev.* 24, 170–180.
- Bradbury-Jones, C., Breckenridge, J.P., Clark, M.T., Herber, O.R., Jones, C., Taylor, J., 2019. Advancing the science of literature reviewing in social research: the focused mapping review and synthesis. *Int. J. Soc. Res. Methodol.* 22 (5), 451–462. <https://doi.org/10.1080/13645579.2019.1576328>.
- Briner, R.B., Denyer, D., 2010. Systematic review and evidence synthesis as a practice and scholarship tool. In: Rousseau, D. (Ed.), *Handbook of evidenced-based management: Companies, classrooms, and research*. Oxford: Oxford University Press, pp. 328–347.
- Brown, D., Hall, S., Davis, M.E., 2019. Prosumers in the post subsidy era: an exploration of new prosumer business models in the UK. ISSN 0301-4215 *Energy Policy* Volume 135, 110984. <https://doi.org/10.1016/j.enpol.2019.110984>.
- Brown, D., Hall, S., Davis, M.E., 2020. What is prosumerism for? Exploring the normative dimensions of decentralised energy transitions, 101475. ISSN 2214-6296 *Energy Res. Soc. Sci.* Volume 66, 2020. <https://doi.org/10.1016/j.erss.2020.101475>.
- Buechler, S., Vázquez-García, V., Martínez-Molina, K.G., Sosa-Capistrán, D.M., 2020. Patriarchy and (electric) power? A Feminist Political Ecology of Solar Energy Use in Mexico and the United States. *Energy Res. Soc. Sci.* 70, 101743 <https://doi.org/10.1016/j.erss.2020.101743>.
- Callahan, J.L., 2010. Constructing a manuscript: distinguishing integrative literature reviews and conceptual and theory articles. *Hum. Resour. Dev. Rev.* 9, 300–304. <https://doi.org/10.1177/1534484310371492>.
- Campos, I., Marín-González, E., 2020. People in transitions: energy citizenship, prosumerism and social movements in Europe. *Energy Res. Soc. Sci.* 69, 101718 <https://doi.org/10.1016/j.erss.2020.101718>.
- Campos, I., Guilherme, P.L., Esther, M.G., Swantje, G., Stephen, H., Lars, H., 2020. Regulatory challenges and opportunities for collective renewable energy prosumers in the EU. *Energy Policy* 138, 111212. <https://doi.org/10.1016/j.enpol.2019.111212>.
- Cantoni, R., Lis, A., Stasik, A., 2018. Creating and Debating Energy citizenship: the Case of Shale Gas in Poland. In: Szolucha, A. (Ed.), *Energy, Resource Extraction and Society: Impacts and Contested Futures*. Routledge, Abingdon, pp. 53–69.
- Caramizaru, E., Uihlein, A., 2020. Energy communities: an overview of energy and social innovation. EUR 30083 EN. Publications Office of the European Union, Luxembourg. https://doi.org/10.2760/180576_JRC119433.
- Carliner, S., 2011. Workshop in conducting integrative literature reviews. *IEEE Int. Prof. Commun. Conf.* 1–3.
- Catney, P., Dobson, A., Hall, S.M., Hards, S., MacGregor, S., Robinson, Z., Ormerod, M., Ross, S., 2013. Community knowledge networks: an action-orientated approach to energy research. *Local Environ.* 18 (4), 506–520. <https://doi.org/10.1080/13549839.2012.748729>.
- Chan, R.Y.K., 1998. Mass communication and pro-environmental behaviour: waste recycling in Hong Kong. *J. Environ. Manag.* 52, 317–325.
- Chan, R.Y.K., 2001. Determinants of Chinese consumers' green purchasing behaviour. *Psychol. Mark.* 18, 389–413.
- Clark, D., 2016. Content strategy: An integrative literature review. *IEEE Trans. Prof. Commun.* 59 (1), 7–23. <https://doi.org/10.1109/TPC.2016.2537080>.
- Corraliza, J.A., Berenguer, J., 2000. Environmental values, beliefs, and actions: a situational approach. *Environ. Behav.* 32 (6), 832–848.
- Couture, T., Barbose, G., Jacobs, D., Parkinson, G., Chessin, E., Belden, A., Wilson, H., Barrett, H. and Rickerson, W. (2014). Residential prosumers: drivers and policy options (re-prosumers) (No. LBNL-6661E). Meister Consultants Group; Lawrence Berkeley National Lab.(LBNL), Berkeley, CA (United States).
- Coy, D., Malekpour, S., Saeri, A.K., Dargaville, R., 2021. Rethinking community empowerment in the energy transformation: a critical review of the definitions, drivers and outcomes. *Energy Res. Soc. Sci.* 72, 101871 <https://doi.org/10.1016/j.erss.2020.101871>.
- Cronin, M.A., George, E., 2023. The why and how of the integrative review. *Organ. Res. Methods* 26 (1), 168–192. <https://doi.org/10.1177/1094428120935507>.
- Cunsolo, A., Ellis, N.R., 2018. Ecological grief as a mental health response to climate change-related loss. *Nat. Clim. Change* 8 (4), 275–281. <https://doi.org/10.1038/s41558-018-0092-2>.
- Damgaard, C.S. (2021). Thinking energy ethics with care: citizens' perspectives on energy. PhD Thesis (University of St Andrews).
- De Young, R., 1985. Encouraging environmentally appropriate behavior: the role of intrinsic motivation, 1986 *J. Environ. Syst.* 15, 281–292.
- De Young, R., Kaplan, S., 1985. Conservation behavior and the structure of satisfactions, 1986 *J. Environ. Syst.* 15 (3), 233–242. <http://hdl.handle.net/2027.42/83862>.
- Dezob, Josquin, 2016. Rise Energy Citiz. fhal-01467509f.
- Della Porta, D., 2009. *Democracy in Social Movements*. Palgrave Macmillan, Basingstoke.

- Devine-Wright, P., 2007. Energy citizenship: Psychological aspects of evolution in sustainable energy technologies. In: Murphy, J. (Ed.), *Governing Technology for Sustainability*. Earthscan, London, pp. 63–88.
- Devine-Wright, P., 2012. Explaining 'NIMBY' Objections to a Power Line. *Environ. Behav.* 45 (6), 761–781. <https://doi.org/10.1177/0013916512440435>.
- Dietz, T., Dan, A., Shwom, R., 2007. Support for climate change policy: social psychological and social structural influences. *Rural Sociol.* 72 (2), 185–214. <https://doi.org/10.1526/003601107781170026>.
- Dorfleitner, G., Utz, S., 2014. Profiling German-speaking Socially Responsible Investors. *Qual. Res. Financ. Mark.* 6 (2), 118–156. <https://doi.org/10.1108/qrfm-07-2012-0024>.
- Dunlap, R.E., Van Liere, K.D., 1978. The "New Environmental Paradigm. *J. Environ. Educ.* 9, 10–19. <https://doi.org/10.1080/00958964.1978.10801875>.
- Dunlap, R.E., Van Liere, K.D., Mertig, A.G., Jones, R.E., 2000. New trends in measuring environmental attitudes: measuring endorsement of the new ecological paradigm: a revised NEP scale. *J. Soc. Issues* 56 (3), 425–442. <https://doi.org/10.1111/0022-4537.00176>.
- Dyba, T., Dingsoyr, T., Hanssen, G.K., 2007. Applying systematic reviews to diverse study types: an experience report. *First Int. Symp. Empir. Softw. Eng. Meas. (ESEM)* 225–234.
- Elgaaid-Gambier, L., Mandler, T., 2021. Me trying to talk about sustainability: exploring the psychological and social implications of environmental threats through user-generated content. *Ecol. Economics* 187, 107089. <https://doi.org/10.1016/j.ecolecon.2021.107089>.
- EU, (2019). Clean energy for all Europeans. E. Commission.
- Farla, J., Alkemade, F., Suurs, R.A.A., 2010. Analysis of barriers in the transition toward sustainable mobility in the Netherlands. *Technol. Forecast. Soc. Change* 77 (8), 1260–1269.
- Fitzpatrick, T. (2014). *Climate Change and Poverty*. Bristol: Bristol University Press.
- Forman, A., 2017. Energy Justice at the end of the wire: enacting community energy and equity in Wales. *Energy Policy* 107, 649–657. <https://doi.org/10.1016/j.enpol.2017.05.006>.
- Gamel, J., Menrad, K., Decker, T., 2016. Is It Really All about the Return on investment? Exploring Private Wind Energy investors' Preferences. *Energy Res. Soc. Sci.*, [Online] 14, 22–32. <https://doi.org/10.1016/j.erss.2016.01.004>.
- Gates, S., 2002. Review of methodology of quantitative reviews using meta-analysis in ecology. *J. Anim. Ecology* 71 (4), 547–557. <https://doi.org/10.1046/j.1365-2656.2002.00634.x>.
- Getzner, M., Grabner-Krauter, S., 2004. Consumer preferences and marketing strategies for "green shares". specifics of the Austrian market. *Int. J. Bank Mark.* 22, 260–279. <https://doi.org/10.1108/02652320410542545>.
- Gillard, R., Snell, C., Bevan, M., 2017. Advancing an Energy Justice Perspective of Fuel poverty: Household Vulnerability and Domestic Retrofit Policy in the United Kingdom. *Energy Res. Soc. Sci.* 29, 53–61. <https://doi.org/10.1016/j.erss.2017.05.012>.
- Gomersall, J.S., Jadotte, Y.T., Xue, Y.F., Lockwood, S., Riddle, D., Preda, A., 2015. Conducting systematic reviews of economic evaluations. *Int. J. Evid. - Based Healthc.* 13 (3), 170–178. <https://doi.org/10.1097/XEB.000000000000063>. PMID: 26288063.
- Gonda, N., 2019. Re-politicising the Gender and Climate Change debate: the Potential of Feminist Political Ecology to Engage with Power in Action in Adaptation Policies and Projects in Nicaragua. *Geoforum* 106, 87–96. <https://doi.org/10.1016/j.geoforum.2019.07.020>.
- Gram-Hanssen, K., Mechlenborg, M., Madsen, L.V., Hansen, A.R., 2017. Gender and ethical consumption of energy in smart homes. *J. Consum. Ethics* 1 (2), 111–119.
- Guckian, M., De Young, R., Harbo, S., 2017. Beyond green consumerism: uncovering the motivations of green citizenship. *Mich. J. Sustain.* 5 (1), 73–94. <https://doi.org/10.3998/mjs.12333712.0005.105>.
- Haf, S., Robison, R., 2020. How Local Authorities can encourage citizen participation in energy transitions. UK Energy Research Centre, London.
- Halseth, G., Markey, S., Ryser, L., 2018. *Service provision and rural sustainability: infrastructure and innovation* (Eds.). Routledge.
- Harmer, A., Xiao, Y., Missoni, E., Tediosi, F., 2013. BRICS without straw? A systematic literature review of newly emerging economies' influence in global health. *Glob. Health* 9 (1), 11. <https://doi.org/10.1186/1744-8603-9-15>.
- Heath, Y., Gifford, R., 2006. Free-market ideology and environmental degradation: the case of belief in global climate change. *Environ. Behav.* 38 (1), 48–71. <https://doi.org/10.1177/0013916505277998>.
- Heldeweg, M.A., Séverine Saintier, S., 2020. Renewable Energy Communities as 'socio-legal institutions': a Normative Frame for Energy decentralisation? *Renew. Sustain. Energy Rev.* 119, 109518 <https://doi.org/10.1016/j.rser.2019.109518>.
- Holstenkamp, L., Kahla, F., 2016. What are community energy companies trying to accomplish? an empirical investigation of investment motives in the German case. *Energy Policy* 97, 112–122. <https://doi.org/10.1016/j.enpol.2016.07.010>.
- Hoppe, T., Graf, A., Warbroek, B., Lammers, I., Lepping, L., 2015. Local governments supporting local energy initiatives: lessons from the best practices of Saerbeck (Germany) and Lochem (The Netherlands). *Sustainability* 7 (2), 1900–1931. <https://doi.org/10.3390/en13021900>.
- Hopper, J.R., Nielsen, J.M., 1991. Recycling as altruistic behavior: normative and behavioral strategies to expand participation in a community recycling program. *Environ. Behav.* 23 (2), 195–220. <https://doi.org/10.1177/0013916591232004>.
- Horstink, L., Wittmayer, J.M., Ng, K.; Luz, G.P., Marín-González, E., Gährs, S.; Campos, I., Holstenkamp, L., Oxenaar, S., Brown, D. (202). Collective Renewable Energy Prosumers and the Promises of the Energy Union: Taking Stock. *Energies*. 13, 421. <https://doi.org/10.3390/en13020421>.
- Hughes, L.J., Mitchell, M., Johnston, A.N., 2016. 'Failure to fail' in nursing—A catch phrase or a real issue? A systematic integrative literature review. *Nurse Educ. Pract.* 20, 54–63. <https://doi.org/10.1016/j.nepr.2016.06.009>.
- Huttunen, S., Salo, M., Aro, R., Turunen, A., 2020. Environmental citizenship in geography and beyond. *Fenn. - Int. J. Geogr.* 198 (1-2), 196–209. <https://doi.org/10.111143/fennia.90715>.
- Ingeborgrud, L., Heidenreich, S., Ryghaug, M., Skjølsvold, T.M., Foulds, C., Robison, R., Buchmann, K., Mourik, R., 2020. Expanding the Scope and Implications of Energy research: a Guide to Key Themes and Concepts from the Social Sciences and Humanities. *Energy Res. Soc. Sci.* 63, 101398 <https://doi.org/10.1016/j.erss.2019.101398>.
- Islar, M., Busch, H., 2016. We are not in this to save the polar bears! – the link between community renewable energy development and ecological citizenship. *Innov.: Eur. J. Soc. Sci. Res.* 29 (3), 303–319. <https://doi.org/10.1080/13511610.2016.1188684>.
- Jamison, A., 2003. The Making of Green knowledge: the Contribution from Activism. *Futures* 35 (7), 703–716. [https://doi.org/10.1016/s0016-3287\(03\)00023-5](https://doi.org/10.1016/s0016-3287(03)00023-5).
- Jamison, A., 2006. Social movements and science: cultural appropriations of cognitive praxis. *Sci. Cult.* 15 (1), 45–59. <https://doi.org/10.1080/09505430500529722>.
- Jansma, S.R., Long, L.A.N., Lee, D., 2023. Understanding energy citizenship: how cultural capital shapes the energy transition. *Energies* 16 (5), 1–19. <https://doi.org/10.3390/en16052106>.
- Jenkins, K., Sovacool, B.K., McCauley, D., 2018. Humanizing Sociotechnical Transitions through Energy justice: an Ethical Framework for Global Transformative Change. *Energy Policy* 117, 66–74. <https://doi.org/10.1016/j.enpol.2018.02.036>.
- Jenkins, K.E.H., McCauley, D., Heffron, R., Stephan, H., Rehner, R.W.M., 2016. Energy justice: a conceptual review. *Energy Res. Soc. Sci.* 11, 174–182. <https://doi.org/10.1016/j.erss.2015.10.004>.
- Johnson, O.W., Han, J.Y.-C., Knight, A.-L., Mortensen, S., Aung, M.T., Boyland, M., Resurrección, B.P., 2020. Intersectionality and Energy transitions: a Review of gender, Social Equity and low-carbon Energy. *Energy Res. Soc. Sci.* 70, 101774 <https://doi.org/10.1016/j.erss.2020.101774>.
- Kalleberg, A.L., 2000. Nonstandard employment relations: Part-time, temporary and contract work. *Annu. Rev. Sociol.* 26 (1), 341–365. <https://doi.org/10.1146/annurev.soc.26.1.341>.
- Kampman, B., Blommerde, J., Afman, M., 2016. *The potential of energy citizens in the European Union*. CE Delft, Delft.
- Kellogg, V.A., Havens, D.S., 2003. Adverse events in acute care: an integrative literature review. *Res. Nurs. Health* 26 (5), 398–408. <https://doi.org/10.1002/nur.10103>.
- Kenis, A., 2016. Ecological citizenship and democracy: communitarian versus agonistic perspectives. *Environ. Polit.* 25 (6), 949–970. <https://doi.org/10.1080/09644016.2016.1203524>.
- Kloppenburg, S., Boekelo, M., 2019. Digital platforms and the future of energy provisioning: promises and perils for the next phase of the energy transition. *Energy Res. Soc. Sci.*, [Online] 49, 68–73. <https://doi.org/10.1016/j.erss.2018.10.016>.
- Kotilainen, K., Mäkinen, S.J., Järvelä, P., Rautiainen, A., Markkula, J., 2016. The role of residential prosumers initiating the energy innovation ecosystem to future flexible energy system. 2016 13th Int. Conf. Eur. Energy Mark. (EEM) 1–5. <https://doi.org/10.1109/EEM.2016.7521325>.
- Kunze, C. and Becker, S. (2014). *Energy Democracy in Europe*. [online] Brussels: Rosa Luxemburg Foundation Brussels Office. Available at: https://www.rosalux.eu/fileadmin/rls/uploads/pdfs/sonst_publicationen/Energy-democracy-in-Europe.pdf. (Accessed 1 April 2023).
- Lacey-Barnacle, M., Bird, C.M., 2018. Intermediating Energy justice? the Role of Intermediaries in the Civic Energy Sector in a Time of Austerity. *Appl. Energy* 226, 71–81. <https://doi.org/10.1016/j.apenergy.2018.05.088>.
- Łapniewska, Z., 2019. Energy, Equality and sustainability? European Electricity Cooperatives from a Gender Perspective. *Energy Res. Soc. Sci.* 57, 101247 <https://doi.org/10.1016/j.erss.2019.101247>.
- Laroche, M., Bergeron, J., Barbaro-Forleo, G., 2001. Targeting consumers who are willing to pay more for environmentally friendly products. *J. Consum. Mark.* 18 (6), 503–520.
- Lee, T., 2019. Which citizenship do you mean? The case of the Seokwan Doosan apartment complex in Seoul. *Energy Environ.* 30 (1), 81–90. <https://doi.org/10.1177/0958305X18787269>.
- Lennon, B., Dunphy, N.P., Sanvicente, E., 2019. Community acceptability and the energy transition: a citizens' perspective. *Energy, Sustain. Soc.* 9 (1), 1–18. <https://doi.org/10.1186/s13705-019-0218-z>.
- Lennon, B., Dunphy, N.P., Gaffney, C., Revez, A., Mullally, G., O'Connor, P., 2020. Citizen or consumer? Reconsidering energy citizenship. *J. Environ. Policy Plan.* 22 (2), 184–197. <https://doi.org/10.1080/1523908x.2019.1680277>.
- Liberati, A., Altman, D.G., Tetzlaff, J., Mulrow, C., Gotzsche, P.C., Ioannidis, J.P.A., Clarke, M., Devereaux, P.J., Kleijnen, J., Moher, D., 2009. The PRISMA Statement for Reporting Systematic Reviews and meta-analyses of Studies That Evaluate Healthcare interventions: Explanation and Elaboration. *BMJ*, [Online] 339 (339). <https://doi.org/10.1136/bmj.b2700>.
- Lieu, J., Sorman, A.H., Johnson, O.W., Virla, L.D., Resurrección, B.P., 2020. Three Sides to Every story: Gender Perspectives in Energy Transition Pathways in Canada, Kenya and Spain. *Energy Res. Soc. Sci.* 68, 101550 <https://doi.org/10.1016/j.erss.2020.101550>.
- Longo, M., Saatchi, S., Keller, M., Bowman, K., Ferraz, A., Moorcroft, P.R., et al., 2020. Impacts of degradation on water, energy, and carbon cycling of the Amazon tropical forests. *J. Geophys. Res.: Biogeosciences* 125, e2020JG005677. <https://doi.org/10.1029/2020JG005677>.

- MacDonald, J.B., Hodgins, G., Saliba, A.J., Metcalf, D.A., 2023. Journalists and depressive symptoms: A systematic literature review. *Trauma, Violence, Abuse* 24 (1), 86–96. <https://doi.org/10.1177/15248380211016022>.
- Machete, I., Marques, R., 2021. Financing the water and sanitation sectors: a hybrid literature review. *Infrastructures* 6 (1), 1–25. <https://doi.org/10.3390/infrastructures6010009>.
- Mah, D.N., van der Vleuten, J.M., Hills, P., Tao, J., 2012. Consumer perceptions of smart grid development: Results of a Hong Kong survey and policy implications. *Energy Policy* 49, 204–216. <https://doi.org/10.1016/j.enpol.2012.05.055>.
- Mangas-Vega, A., Dantas, T., Sánchez-Jara, J.M., Gómez-Díaz, R., 2018. Systematic literature reviews in social sciences and humanities: a case study. *J. Inf. Technol. Res. (JITR)* 11 (1), 1–17. <https://doi.org/10.4018/JITR.2018010101>.
- Mang-Benza, C., 2021. Many shades of pink in the energy transition: seeing women in energy extraction, production, distribution, and consumption. *Energy Res. Soc. Sci.* 73, 101901. <https://doi.org/10.1016/j.erss.2020.101901>.
- Maswabi, M.G., Chun, J., Chung, S.Y., 2021. Barriers to energy transition: a case of Botswana. *Energy Policy* 158, 1–10.
- McGuire, D., McVicar, O., Tariq, U.E.H., 2022. Skills audits: an integrative literature review. *Ind. Commer. Train.* 55 (1), 34–46.
- Mendes, G., Wolff, A., Kuronen, T. and Melkas, H. (2020). Empowerment of energy citizens in the digital era: A policy brief. Lappeenranta-Lahti University of Technology LUT.
- Middlemiss, L., 2017. A critical analysis of the new politics of fuel poverty in England. *Crit. Soc. Policy* 37 (3), 425–443. <https://doi.org/10.1177/0261018316674851>.
- Minatogawa, V.L.F., Franco, M.M.V., de Souza Pinto, J., Batocchio, A., 2018. Business model innovation influencing factors: an integrative literature review. *Braz. J. Oper. Prod. Manag.* 15 (4), 610–617.
- Moncecchi, M., Meneghelli, S., Merlo, M., 2020. Energy sharing in renewable energy communities: the Italian case. 2020 55th Int. Univ. Power Eng. Conf. (IUPECC) 1–6.
- Mori, T., Tasaki, T., 2019. Factors influencing pro-environmental collaborative collective behaviors toward sustainability transition – a case of renewable energy. *Environ. Educ. Res.* 25 (4), 566–584. <https://doi.org/10.1080/13504622.2018.1545155>.
- Mullally, G., Dunphy, N., O'Connor, P., 2018. Participative environmental policy integration in the Irish energy sector. *Environ. Sci. Policy* 83, 71–78. <https://doi.org/10.1016/j.envsci.2018.02.007>.
- Nakamura, H., 2017. Political and environmental attitude toward participatory energy and environmental governance: a survey in post-Fukushima Japan. *J. Environ. Manag.* 201, 190–198. <https://doi.org/10.1016/j.jenvman.2017.06.053>.
- Nakamura, H., 2018. Willingness to know and talk: citizen attitude toward energy and environmental policy deliberation in post-Fukushima Japan. *Energy Policy* 115, 12–22. <https://doi.org/10.1016/j.enpol.2017.12.055>.
- Nilsson, J., 2008. Investment with a conscience: examining the impact of pro-social attitudes and perceived financial performance on socially responsible investment behavior. *J. Bus. Ethics* 83, 307–325. <https://doi.org/10.1007/s10551-007-9621-z>.
- Noordzij, M., Hoof, L., Dekker, F.W., Zoccali, C., Jager, K.J., 2009. Systematic reviews and meta-analyses: when they are useful and when to be careful. *Kidney Int.* 76 (11), 1130–1136. <https://doi.org/10.1038/ki.2009.339>.
- Nye, M., Whitmarsh, L., Foxon, T., 2010. Socio-psychological perspectives on the active roles of domestic actors in transition to a lower carbon electricity economy. *Environ. Plan. A* 42, 697–714.
- O'Riordan, T., 1985. Environmental Issues. *Prog. Hum. Geogr.* 9 (3), 401–414. <https://doi.org/10.1177/030913258500900305>.
- Ofosu-Peasah, G., Antwi, E.O., Blyth, W., 2021. Factors characterising energy security in West Africa: An integrative review of the literature. *Renew. Sustain. Energy Rev.* 148, 1–14. <https://doi.org/10.1016/j.rser.2021.111259>.
- Olivadese, R., Alpagut, B., Revilla, B.P., Brouwer, J., Georgiadou, V., Woestenbug, A., van Wees, M., 2021. Towards Energy Citizenship for a Just and Inclusive Transition: Lessons Learned on Collaborative Approach of Positive Energy Districts from the EU Horizon2020 Smart Cities and Communities Projects. *Proceedings* 65 (1), 1–8. <https://doi.org/10.3390/proceedings2020065020>.
- Oreg, S., Katz-Gerro, T., 2006. Predicting proenvironmental behavior cross-nationally values, the theory of planned behavior, and value-belief-norm theory. *Environ. Behav.* 38 (4), 462–483. <https://doi.org/10.1177/0013916505286012>.
- Owens, S., Drifill, L., 2008. How to change attitudes and behaviours in the context of energy. *Energy Policy* 36 (12), 4412–4418. <https://doi.org/10.1016/j.enpol.2008.09.031>.
- Parag, Y., Sovacool, B., 2016. Electricity market design for the prosumer era. *Nat. Energy* 1, 16032. <https://doi.org/10.1038/nenergy.2016.32>.
- Paré, G., Kitsiou, S., 2017. Methods for Literature Reviews. In: Lau, F., Kuziemsky, C. (Eds.), *Handbook of eHealth Evaluation: an Evidence-based Approach*. University of Victoria, Victoria, pp. 157–179.
- Paré, G., Trudel, M.C., Jaana, M., Kitsiou, S., 2015. Synthesizing information systems knowledge: a typology of literature reviews. *Inf. Manag.* 52, 183–199. <https://doi.org/10.1016/j.im.2014.08.008>.
- Parkins, J.R., Rollins, C., Anders, S., Comeau, L., 2018. Predicting intention to adopt solar technology in Canada: the role of knowledge, public engagement, and visibility. *Energy Policy* 114, 114–122. <https://doi.org/10.1016/j.enpol.2017.11.050>.
- Pedersen, D.B., Grønvd, J.F., Hvidtfeldt, R., 2020. Methods for mapping the impact of social sciences and humanities—A literature review. *Res. Eval.* 29 (1), 4–21. <https://doi.org/10.1093/revseval/rvz033>.
- Pelluchon, C., 2017. L'éthique des vertus: une condition pour opérer la transition environnementale. *La Pensée écologique* (1). <https://doi.org/10.3917/lpe.001.0101>.
- Pohjolainen, P., Kukkonen, I., Jokinen, P., Poortinga, W., Adedayo Ogunbode, C., Böhm, G., Fisher, S., Umir, R., 2021. The role of national affluence, carbon emissions, and democracy in Europeans' climate perceptions. *Innov.: Eur. J. Soc. Sci. Res.* 1–19. <https://doi.org/10.1080/13511610.2021.1909465>.
- Quan-Hoang, V., Anh-Vinh, L., Viet-Phuong, L., Phuong-Hanh, H., Manh-Toan, H., 2020. Making social sciences more scientific: Literature review by structured data. *MethodsX* 7, 1–14. <https://doi.org/10.1016/j.mex.2020.100818>.
- Radtke, J., 2014. A Closer Look inside Collaborative action: Civic Engagement and Participation in Community Energy Initiatives. *People, Place Policy Online* 8 (3), 235–248. <https://doi.org/10.3351/ppp.0008.0003.0008>.
- Rahimi, S., Khorasani, A., Rezaeizadeh, M., Waterworth, J., 2022. The virtual human resource development (VHRD) approach: an integrative literature review. *Eur. J. Train. Dev.* 46 (5/6), 484–503.
- Rasch, E.D., Köhne, M., 2016. Hydraulic fracturing, energy transition and political engagement in the Netherlands: The energetics of citizenship. *Energy Res. Soc. Sci.* 13, 106–115.
- Reimer, B. (2002). Understanding and measuring social capital and social cohesion. available at the New Rural Economy Web site <http://nre.concordia.ca/nre_reports.htm>. Accessed July, 23, 2003.
- Rickerson, W., Couture, T., Barbose, G., Jacobs, D., Parkinson, G., Chessin, E., Belden, A., Wilson, H., Barrett, H., 2014. Residential prosumers: drivers and policy options (reprosumers). IEA-RTD. <https://doi.org/10.2172/1163237>.
- Rogers, J.C., Simmons, E.A., Convery, I., Weatherall, A., 2008. Public perceptions of opportunities for community-based renewable energy projects. *Energy Policy*, [Online] 36 (11), 4217–4226. <https://doi.org/10.1016/j.enpol.2008.07.028>.
- Rosen, B.N., Sandler, D.M., Shani, D., 1991. Social issues and socially responsible investment behavior: a preliminary empirical investigation. *J. Consum. Aff.* 25 (2), 221–234. <https://doi.org/10.1111/j.1745-6606.1991.tb00003.x>.
- Ruostetsaari, I., 2020. From consumers to energy citizens: finns' readiness for demand response and prosumerism in energy policy making. *Int. J. Energy Sect. Manag.* 14 (6), 1157–1175. <https://doi.org/10.1108/ijesm-11-2019-0001>.
- Ryan, R.M., Deci, E.L., 2000. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am. Psychol.* 55 (1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>.
- Ryghaug, M., Skjølsvold, T.M., Heidenreich, S., 2018. Creating energy citizenship through material participation. *Soc. Stud. Sci.* 48 (2), 283–303. <https://doi.org/10.1177/0306312718770286>.
- Samdahl, D.M., Robertson, R., 1989. Social determinants of environmental concern. *Environ. Behav.* 21 (1), 57–81. <https://doi.org/10.1177/0013916589211004>.
- Sarrica, M., Brondi, S., Cottone, P., 2014. Italian views on sustainable energy: trends in the representations of energy, energy system, and user, 2009–2011. *Nat. Cult.* 9 (2), 122–145.
- Sarrica, M., Biddau, F., Brondi, S., Cottone, P., Mazzara, B.M., 2018. A multi-scale examination of public discourse on energy sustainability in Italy: empirical evidence and policy implications. *Energy Policy* 114, 444–454. <https://doi.org/10.1016/j.enpol.2017.12.021>.
- Schall, D.L., 2020. More than money? An empirical investigation of socio-psychological drivers of financial citizen participation in the German energy transition. *Cogent Economics Financ.* 8 (1), 1777813.
- Schoor, T. van der, Lente, H. van, Scholtens, B., Peine, A., 2016. Challenging obduracy: how local communities transform the energy system. *Energy Res. Soc. Sci.* 13, 94–105. <https://doi.org/10.1016/j.erss.2015.12.009>.
- Schultz, P.W., Nolan, J.M., Cialdini, R.B., Goldstein, N.J., Griskevicius, V., 2007. The Constructive, Destructive, and Reconstructive Power of Social Norms. *Psychol. Sci.* 18 (5), 429–434. <https://doi.org/10.1111/j.1467-9280.2007.01917.x>.
- Schwartz, S.H., 1992. Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. In: Zanna, M.P. (Ed.), *Advances in experimental social psychology*, 25. Academic Press, pp. 1–65. [https://doi.org/10.1016/S0065-2601\(08\)60281-669910297506](https://doi.org/10.1016/S0065-2601(08)60281-669910297506).
- Seyfang, G., Haxeltine, A., 2012. Growing Grassroots Innovations: Exploring the Role of Community-Based Initiatives in Governing Sustainable Energy Transitions. *Environ. Plan. C: Gov. Policy* 30 (3), 381–400. <https://doi.org/10.1068/c10222>.
- Shyu, C.W., 2021. A Framework for 'right to Energy' to Meet UN SDG7: Policy Implications to Meet Basic Human Energy needs, Eradicate Energy poverty, Enhance Energy justice, and Uphold Energy Democracy. *Energy Res. Soc. Sci.* 79, 1–15. <https://doi.org/10.1016/j.erss.2021.102199>.
- Siddaway, A.P., Wood, A.M., Hedges, L.V., 2019. How to do a systematic review: A best practice guide for conducting and reporting narrative reviews, meta-analyses, and meta-syntheses. *Annu. Rev. Psychol.* 70, 747–770. DOI: 10.1146/annurev-psych-010418-102803.
- Snyder, H., 2019. Literature Review as a Research methodology: an Overview and Guidelines. *J. Bus. Res.*, [Online] 104 (104), 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>.
- Sovacool, B.K., Dworkin, M.H., 2015. Energy justice: conceptual insights and practical applications. *Appl. Energy* 142, 435–444. <https://doi.org/10.1016/j.apenergy.2015.01.002>.
- Stern, P.C., Kalof, L., Dietz, T., Guagnano, G.A., 1995. Values, beliefs, and proenvironmental action: attitude formation toward emergent attitude objects. *J. Appl. Soc. Psychol.* 25 (18), 1611–1636. <https://doi.org/10.1111/j.1559-1816.1995.tb02636.x>.
- Stern, P.C., Dietz, T., Abel, T.D., Guagnano, G., Kalof, L., 1999. A value-belief-norm theory of support for social movements: the case of environmentalism. *Hum. Ecology Rev.* 6 (2), 81–97.
- Straughan, R.D., Roberts, J.A., 1999. Environmental segmentation alternatives: a look at green consumer behavior in the new millennium. *J. Consum. Mark.* 16 (6), 558–575. <https://doi.org/10.1108/073637>.

- Suboticki, I., Świątkiewicz-Mośny, M., Ryghaug, M. and Skjølvold, T.M., 2019. Inclusive Engagement in Energy with special focus on low carbon transport solutions. Scoping workshop report. Cambridge: Energy-SHIFTS.
- Sullivan, L., Ryser, L., Halseth, G., 2014. Recognizing change, recognizing rural: the new rural economy and towards a new model of rural service. *J. Rural Community Dev.* 9 (4), 219–245.
- Szulecki, K., 2018. Conceptualizing energy democracy. *Environ. Polit.* 27 (1), 21–41. <https://doi.org/10.1080/09644016.2017.1387294>.
- Szulecki, K., Overland, I., 2020. Energy democracy as a process, an outcome and a goal: a conceptual review. *Energy Res. Soc. Sci.* 69, 1–14. <https://doi.org/10.1016/j.erss.2020.101768>.
- Tilly, C., 1995. The emergence of citizenship in france and elsewhere. *Int. Rev. Soc. Hist.* 40, 223–236. <https://doi.org/10.1017/S0020859000113653>.
- Torraco, R.J., 2005. Writing integrative literature reviews: guidelines and examples. *Hum. Resour. Dev. Rev.* 4 (3), 356–367. <https://doi.org/10.1177/1534484305278283>.
- Torraco, R.J., 2016. Writing integrative literature reviews: using the past and present to explore the future. *Hum. Resour. Dev. Rev.* 15 (4), 404–428. <https://doi.org/10.1177/1534484316671606>.
- Tucker, P., 1999. Normative influences in household recycling. *J. Environ. Plan. Manag.* 42, 63–82.
- Turnbull, D., Chugh, R., Luck, J., 2023. Systematic-narrative hybrid literature review: a strategy for integrating a concise methodology into a manuscript. *Soc. Sci. Humanit. Open* 7 (1), 1–4. <https://doi.org/10.1016/j.ssaho.2022.100381>.
- van Zyl-Bulitta, V.H., Ritzel, C., Stafford, W., Wong, J.G., 2019. A compass to guide through the myriad of sustainable energy transition options across the global North-South divide. *Energy* 181, 307–320. <https://doi.org/10.1016/j.energy.2019.05.111>.
- Vesnic-Alujevic, L., Breitegger, M., Pereira, A.G., 2016. What smart grids tell about innovation narratives in the European Union: hopes, imaginaries and policy. *Energy Res. Soc. Sci.* 12, 16–26. <https://doi.org/10.1016/j.erss.2015.11.011>.
- Vesseli, A., Kirchner, B., Kollmann, A. (2022). The legal, regulatory and institutional dimensions in the emergence of energy citizenship. [online] Available at: (<https://cordis.europa.eu/project/id/101022585/results>) (Accessed: 13 November 2023).
- Vigoda-Gadot, E., Miller-Mor, R., Mizrahi, S., Tevet, E., 2008. The Bureaucracy-democracy tango: a dual-source empirical revalidation by structural equation modelling in the israeli public sector. *Policy Polit.* 36 (3), 431–448. <https://doi.org/10.1332/030557308x307621>.
- Villalba, B. and Semal, L. (2018). Sobriété énergétique: Contraintes matérielles, équité sociale et perspectives institutionnelles. Quae.
- Vom Brocke, J., Simons, A., Niehaves, B., Riemer, K., Plattfaut, R. and Cleven, A. (2009). "Reconstructing the giant: On the importance of rigour in documenting the literature search process", Proceedings of the 17th European Conference on Information Systems (ECIS), Italy.
- Wahlund, M., Palm, J., 2022. The role of energy democracy and energy citizenship for participatory energy transitions: a comprehensive review. *Energy Res. Soc. Sci.* 87, 1–19. <https://doi.org/10.1016/j.erss.2021.102482>.
- Walker, G., 2012. *Environmental Justice: Concepts, Evidence and Politics*. Oxon. Routledge.
- Walker, G., Day, R., 2012. Fuel poverty as injustice: integrating distribution, recognition and procedure in the struggle for affordable warmth. *Energy Policy* 49, 69–75. <https://doi.org/10.1016/j.enpol.2012.01.044>.
- Walker, G., Devine-Wright, P., 2008. Community renewable energy: what should it mean? *Energy Policy* 36 (2), 497–500. <https://doi.org/10.1016/j.enpol.2007.10.019>.
- Warren, C.R., McFadyen, M., 2010. Does community ownership affect public attitudes to wind energy? A case study from south-west Scotland. *Land Use Policy* 27 (2), 204–213. <https://doi.org/10.1016/j.landusepol.2008.12.010>.
- Watson, C., Boyle, E., Mullally, G. and Ó Gallachóir, B. (2020). Responding to the Energy Transition in Ireland: the Experience and Capacity of Communities. [online] Environmental Protection Agency. Available at: https://www.epa.ie/publications/research/climate-change/Research_Report_337.pdf. (Accessed 3 April 2023).
- Webb, J., 2012. Climate change and society: the chimera of behaviour change technologies. *Sociology* 46 (1), 109–125. <https://doi.org/10.1177/0038038511419196>.
- Webster, Jane, and Richard T. Watson (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. *MIS Quarterly* 26 (2), pp. xiii–xiii.
- Whittemore, R., Knafl, K., 2005. The integrative review: updated methodology. *J. Adv. Nurs.* 52 (5), 546–553. <https://doi.org/10.1111/j.1365-2648.2005.03621.x>.
- Williams, G., 2007. Some determinants of the socially responsible investment decision: a cross-country study. *J. Behav. Financ.* 8 (1), 43–57.
- Wittmayer, J.M., Avelino, F., Pel, B., Campos, I., 2021. Contributing to sustainable and just energy systems? The mainstreaming of renewable energy prosumerism within and across institutional logics. *ISSN 0301-4215 Energy Policy Volume 149*, 112053. <https://doi.org/10.1016/j.enpol.2020.112053>.
- Wolske, K.S., Stern, P.C., Dietz, T., 2017. Explaining interest in adopting residential solar photovoltaic systems in the United States: toward an integration of behavioral theories. *Energy Res. Soc. Sci.* 25, 134–151.
- Wong, C.A., Cummings, G.G., Ducharme, L., 2013. The relationship between nursing leadership and patient outcomes: a systematic review update. *J. Nurs. Manag.*, [Online] 21 (5), 709–724. <https://doi.org/10.1111/jonm.12116>.
- Wüstenhagen, R., Wolsink, M., Bürer, M.J., 2007. Social acceptance of renewable energy innovation: an introduction to the concept. *Energy Policy* 35 (5), 2683–2691. <https://doi.org/10.1016/j.enpol.2006.12.001>.
- Xiao, Y., Watson, M., 2019. Guidance on conducting a systematic literature review. *J. Plan. Educ. Res.* 39 (1), 93–112. <https://doi.org/10.1177/0739456X17723971>.
- Yeboah, F.K., Kaplowitz, M.D., 2016. Explaining energy conservation and environmental citizenship behaviors using the value-belief-norm framework. *Hum. Ecology Rev.* 22 (2), 137–159.
- Yuriev, A., Dahmen, M., Paillé, P., Boiral, O., Guillaumie, L., 2020. Pro-environmental behaviors through the lens of the theory of planned behavior: A scoping review. *Resour., Conserv. Recycl.* 155, 104660.