



Energy democracy as a process, an outcome and a goal: A conceptual review

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ABSTRACT

‘Energy democracy’ has evolved from a slogan used by activists demanding a greater say in energy-related decision-making to a term used in policy documents and scholarly literature on energy governance and energy transitions. This article reviews the academic literature using a combination of three methodological elements: (1) keyword searches of major bibliographical databases for quantification purposes; (2) an innovative method referred to as ‘circulation tracing’ to assess impact; and (3) in-depth discussion of the theoretical underpinnings, implications and interconnections of different parts of the literature. A conceptual framework is developed around three divergent understandings of the term ‘energy democracy’: (1) a process driven forwards by a popular movement; (2) an outcome of decarbonisation; and (3) a goal or ideal to which stakeholders aspire. The review also highlights some weaknesses of the literature: fragmentation between its European and American branches, which barely relate to each other; implicit or absent linkages between ‘energy democracy’ and broader theories of democracy; a tendency to idealise societal grassroots; confusion about the roles of the state, private capital and communities; and lack of attention to the threat posed by energy populism. Proponents should not assume that more energy democracy will inherently mean faster decarbonisation, improved energy access or social wellbeing. Finally, more emphasis should be placed on the role of research in providing evidence to ground energy democracy-related analyses and discussions.

1. Introduction

The idea that ‘energy’ and ‘democracy’ belong together became noticeably more widespread in the 2010s. Linked to the expanded deployment of distributed and small-scale renewable sources, the rise of the concept of energy democracy also reflects the growing politicization of energy governance and climate policy. From a niche concept coined by activists, energy democracy has become an increasingly popular reference for analysts and policymakers, and is now used by, for instance, European Union (EU) officials. Marie Donnelly, former Director for Renewables, Research and Innovation, and Energy Efficiency at the Directorate General for Energy of the European Commission, sees energy democracy as ‘a great idea. It’s the new “in” phrase. And I think it’s right. [...] We all are energy users. [People] should have structures and mechanisms that allow them to express their position’ [1]. Also the academic debate and literature on energy democracy has expanded, thanks also to the gradual institutionalization of energy-related social sciences and humanities, for which this journal is an important hub.

Calls for energy democracy combine normative and pragmatic arguments. Among the latter, the need to secure social acceptance of energy transitions is pushing policymakers and energy sector

companies to engage with the previously unnoticed ‘social’ aspects of energy policy, which are in fact deeply political. Furthermore, increased public participation in resource governance and energy policy – as comparative research has shown – results in better, not just fairer, governance [2,3]. This new approach is necessitated by the qualitatively new challenges that energy policy is facing. The choices involved in designing energy transition pathways can no longer be bracketed as non-political. As Welton aptly notes:

Much of the present call for ‘energy democracy’ stems from recognition of the scale of the changes and choices at hand for the sector. Technocratic expertise provides limited grounds for making these choices. The question of how to transform energy is one of values: although we have many technologies at hand to help in this transition—from nuclear energy, to large-scale renewables, small-scale distributed energy, energy storage, and carbon capture and sequestration—none of them is without expense, risks, or complications [4].

The demand for energy democracy has three exogenous drivers: climate change, market changes, and technological progress. Taken together, they ‘explain much of the call for more democratic control of

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the electricity grid' as '[t]he old, technocratic, closed-door regulatory model is ill-suited for present conditions and no longer proves satisfactory to anyone involved, including regulators, regulated utilities, and the class formerly known as "consumers"' [4]. Thombs underlines that depending on the criteria applied, technologies chosen etc., energy transitions will result in very different socio-technical regimes [5]. This has important implications for democracy. Furthermore, the expansion of renewables and community energy initiatives has already broadened the pool of energy policy stakeholders.

There is no agreed definition of energy democracy, although it 'consistently manifests as a concern about who controls the means of energy production and consumption' [6]. This lack of agreed definition or even a common frame, although not unusual for the social sciences, is not merely an inconvenience – it is symptomatic of the fragmentation of the energy democracy literature. Interdisciplinary in nature and driven by an eclectic crowd of human geographers, sustainability scholars, legal scholars and political scientists, it is further influenced by national and regional specificities. As is the case with much energy-related social science research, the literature on the democratization of energy system transitions often has a national or local community focus [7], resulting in fundamental differences in perspective and experience.

Adding to such disciplinary and regional differences, the normative core of energy democracy has permitted the formation of significant cleavages due to differing ideological underpinnings, as well as conflicting models and articulations of democracy itself (compare [8]). In other words, energy democracy is a 'transdisciplinary networked area of study at the intersection of practitioners and researchers that avoids extractive models of research' [9]. It is developed from a variety of narrow positions that are not necessarily interested in the broader picture, whether geographic, disciplinary or political.

As a result, the growing literature on energy democracy – most of which has only been published from 2017 onwards (see Fig. 1) – is already noticeably fragmented. This poses a risk, potentially undermining not only the scholarly analysis of energy transitions and governance, but also – and perhaps more importantly – negatively affecting the way such transitions actually unfold. The concept and its articulations should inform reformers, and yet 'to talk as though we all agree on this goal risks cutting out important front-end deliberations over its definition—deliberations that are crucial to guide major regulatory reforms now taking place' [4].

We do not insist that a single definition or frame be imposed on such a diverse literature, as this may prove counterproductive. Instead, we

propose a structured critical review of the most recent literature, highlighting three ideal-typical *understandings* of energy democracy as:

- a) a *process* – which, through dispersed grassroots initiatives and a transnational social movement, is challenging energy incumbents;
- b) an *outcome* of decarbonisation – the more we move to a renewable and distributed system, the more the energy sector is democratized;
- c) a *normative goal* – an ideal to aspire to in an unspecified decarbonised future.

'Understandings' are broader than definitions or operationalisations. They are ideas, often implicit, about the drivers of transitions and democratization, as well as the theories of transition and theories of action that underpin the literature. When someone talks about or produces research on energy democracy, what they are (apparently) saying can be seen to fall into one of the categories described, depending on that person's underlying theory of transition and action.

In the following sub-section, we describe how we identified a corpus of literature. Based on this literature, in Section 2 we present the three understandings of energy democracy in greater detail. The objective here is not to arbitrarily impose a 'correct' definition, but to provide a useful protocol of differences, thereby allowing for better expectation management and helping readers to reflect on the contributions made by different segments of the literature.

What we do argue, however, is that despite growing attention, the idea of energy democracy has been subject to relatively little critical thinking. As a result, numerous questions remain largely unanswered. The most important of these relates to the relationship between 'energy democracy' visions and imaginations of democracy more broadly, namely: what precisely is democratic about energy democracy, and what conceptions of democracy have underpinned energy governance to date? We begin Section 3 by addressing this problem, showing the different democracy theories and imaginations that inform the three understandings outlined above. We further explore some problems already apparent in the energy democracy literature, stemming from divergent and mutually exclusive expectations that have arisen due to different understandings of energy democracy, before sketching potentially fruitful avenues for future research.

1.1. Systematic review: Method and quantitative trends

Our review takes a three-pronged approach. Its first aim is to

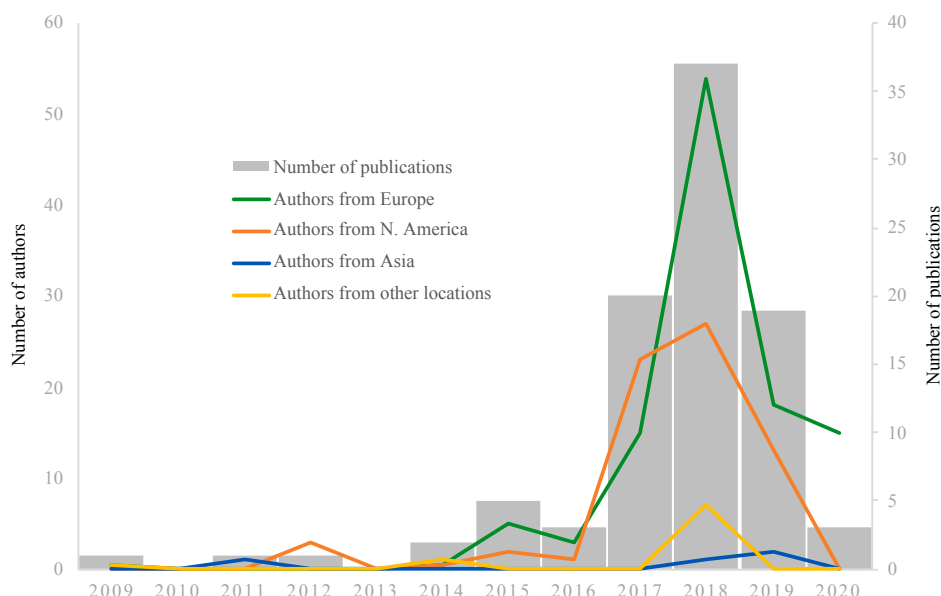


Fig. 1. Number of publications and number and location of authors writing on energy democracy, based on Web of Science and Scopus searches. (Regional location is based on the location of the institutions where authors were based, not the nationality of authors. If authors had multiple affiliations in different regions, the location of the author was divided between those regions. In Scopus and Web of Science, searches were limited to titles, abstracts and keywords.)

quantitatively assess changes in the intensity of energy democracy research, measured in terms of the volume of publications appearing over time. For this, we carried out searches of Scopus and ISI Web of Science for ‘energy democracy’ and ‘energy democrati*ation’ for the period 1990–2020. We chose these two databases because, for this type of analysis, they provide more clear-cut and reliable results than Google Scholar, which allows for multiple listings of the same reference and does not permit searches limited to titles and abstracts. A total of 92 publications were identified, peaking during the years 2017–2019, with the first peer-reviewed academic publication, by Wood [10], appearing in 2009 (see Fig. 1).

This standard keyword search, focused on outputs, was supplemented with a second method we call ‘circulation tracing’, focusing on impact. We here use ‘circulation’ in the social anthropological sense of a movement of objects or ideas, whose meaning changes as they ‘travel’ [11]. We wanted to supplement the quantitative analysis of papers seeking to shape the concept of energy democracy, or at least self-declaredly being about the subject, with those that referred to energy democracy in different contexts without necessarily putting it centre-stage. Our motivation was to explore how this relatively young concept functions in energy studies. For this, we did rely on Google Scholar, which provides an interesting snapshot of impact, as it counts citations in a broad range of publications.

For the circulation tracing, we selected the three theoretical publications on energy democracy – Becker and Naumann 2017 [12], Burke and Stephens 2017 [13], Szulecki 2018 [2] – that had the highest number of citations (40, 115, and 81 citations respectively, as of 15 March 2020). At the time, these were arguably the most impactful theoretical pieces on the topic (the next most-cited publication having received 25 citations). We went through all 235 citations of the three high-impact articles in Google Scholar, removed duplicates and non-peer-reviewed publications, and arrived at 138 publications that cited the three key theoretical essays (see Table 1).

This dual method of systematic literature review, combining output measurement (Scopus and Web of Science) and impact assessment (Google Scholar), provides a comprehensive picture of the literature in this issue area. When duplicates are removed, we analysed a total of 188 texts across the two search methods (see Table 2). Having thus delimited the corpus of texts, in the next section we proceed with the third step – a more qualitative conceptual review.

In the process of reviewing the literature, we identified three main journals on whose pages the debate on energy democracy is unfolding, and where most theoretically-oriented pieces have been published: *Environmental Politics*, *Frontiers in Communication*, and *Energy Research and Social Science*. Other important outlets included *Renewable and Sustainable Energy Reviews*, *Energy Policy* and *Sustainability* (see Table 2). Much of the rest of our discussion revolves around the articles published in these journals.

2. A critical conceptual review of energy democracy

2.1. A young but fragmented field

Energy democracy emerged as a more politically oriented concept at

Table 2

Main outlets (based on searches in ISI Web of Science, Scopus and Google Scholar).

Outlet	Number of publications
<i>Energy Research and Social Science</i>	31
<i>Renewable and Sustainable Energy Review</i>	8
<i>Frontiers in Communication</i>	7
<i>Energy Policy</i>	7
<i>Environmental Politics</i>	6
<i>Sustainability</i>	6
Other journals	79
Monographs and edited volumes	44
Total	188

the already contentious frontier of energy systems governance and normative theory. It occupies the ground between the narrower and more descriptive notion of ‘community energy’ [104,130,190] – which emphasizes scale and geographic proximity – and that of ‘energy justice’, a powerful critical tool which can be used to incorporate injustices related to class, race, gender or spatial inequalities [28,60,67,106,191–193]. Jenkins, one of the main authors writing on energy justice, sees energy democracy as one component of this broader idea of energy justice [6]. While we do not entirely agree with this, clearly, energy justice resonates among a broader range of stakeholders, deriving strength from the consensus it enjoys regarding the function and dimensions of the concept (even if this falls short of agreement on its strict definition). It has clear boundaries – a solid landmass, as it were – allowing scholars, experts and practitioners to connect a set of normative claims with reality. By contrast, energy democracy is still an archipelago.

Van Veelen and van der Horst, who have conducted a meticulous historical search into the energy democracy concept reaching back to 2003, point out that ‘in its early stages energy democracy was primarily used by non-governmental groups and researchers in the US ... before gaining ground in Europe’ [68], most importantly Germany and Poland. The legacy of these contrasting historical trajectories is still visible in the broader approaches and understandings of energy democracy, flowing as they do from a situation in which the same concept gained quite different meanings according to context, and scholars developed ‘distinct and potentially competing approaches to energy democracy’ [30].

As a result, to the extent that the existing energy democracy sub-communities are even aware of one another, they seem to be speaking past rather than to each other. It is hard to find another social science concept where the divide between the North American and European approaches is so striking. Though this cleavage was noticed by Alarcón Ferrari and Chartier in 2017, they did not at the time see it as a symptomatic of conflictive fragmentation within the literature [176].

The North American branch of the energy democracy literature is strongly influenced by the 2017 ‘Energy Democracy Symposium’ in Utah, which brought together North American activists and academics. Drawing on that event and the work of the group it gathered, Feldpausch-Parker and colleagues do not refer to a single non-American source in what at first seems like an attempt at a broad overview of the

Table 1

Publications identified via systematic review.

Circulation tracing in Google Scholar	
Citing Becker and Naumann 2017 [12]	[7,14–41]
Citing Burke and Stephens 2017 [13]	[5,7,9,18,21,25,27,29,30,32,38,42–111]
Citing Szulecki 2018 [2]	[6–8,18,22,25,27,29,30,32,38,42,55,62,68,70,83,85,87,91,110–143]
Keyword search in Scopus and ISI Web of Science	
Results	[2,4,5,10,12,13,15,18,32,38,41,48,55,64,68,77,80,87,91,101,121,135,144–189]

debate [9]. Similarly, while Fairchild and Weinrub's inspiring edited volume gathers a plethora of activist voices – from 'teamsters to turtle-kids' as the 1999 Seattle protest quip had it – they are exclusively from North America [152]. Meanwhile, across the Atlantic, van Veelen and Eadson's excellent recap of a 'small but growing number' of energy democracy theoretical papers mentions only those by European authors [22].

While one of the definitions of energy democracy provided by Morris and Jungjohann in their monograph – 'something currently mainly pursued in Denmark and Germany' [149] – is certainly meant humorously, it illustrates an important characteristic of the European experience, where research has followed actual developments on the ground. However, these were of a different character to those in North America, including energy and climate activism connected with booming energy cooperativism in Germany [19], and experiments with community energy, in – among other places – Denmark, the Netherlands and the UK. However, they also involved broader policy discussions around the 'citizen' and 'bottom-up' elements of the nascent EU Energy Union and the so-called 'Clean Energy Package'. These latter experiences resulted in the deeper involvement of legislators, politicians and European officials. The varieties of democracy, capitalism and public policy regimes [194] leave their mark on the *varieties of energy democracy*, what users seem to convey with the term, and the kinds of phenomena they are interested in.

Some scholars see energy democracy's strength precisely in this plurality and fluidity. Most importantly, Chilvers and Pallett, advocating what they refer to as a 'relational agenda', suggest that analyses should follow the meanings attached to energy democracy by users – practitioners, activists, citizen groups etc. – rather than trying to define it a priori [7]. This 'relational' strategy is profoundly inductive, intended to capture emic meaning-in-use and avoid any preconceptions that the scholar as 'expert' might impose on the practice. It builds on energy democracy experiences and experiments, tracing 'how and when energy system change draws upon democratic principles and how its discourses may, in turn, contribute to a deeper understanding of participatory democracy' [9].

While this method is sensible for exploratory purposes and increases our awareness of contextual differences, it does not help build a common platform, and contrasts starkly with those approaches attempting to turn energy democracy into a more 'objective' benchmark (e.g. [2,4,12,162]). For this latter group of authors, the goals of decarbonisation and democratization require different instruments, and their effectiveness needs to be evaluated in some way – against both ultimate goals and each other. It therefore makes sense to ask which characteristics of energy democracy can 'travel' between contexts and so are relevant for achieving a just, democratic and sustainable energy system.

In the paragraphs above, we can begin to see the major differences in understanding energy democracy, which go deeper than academic squabbles over the neatest definition. Van Veelen and van der Horst have also noticed this lack of clarity regarding what energy democracy ultimately is, which reflects inconsistency among deeper understandings of the concept [68].

Our reading of the main theoretical texts sparked the initial inspiration to think about how energy democracy is understood by different authors, and whether or not it is explicitly defined. In an initial reading we noticed the dichotomy of energy democracy being perceived as either a cause of change (energy transition), or an outcome of that change (compare [68]). The literature-gathering methods described in section 1.1 provided us with a clearly delimited corpus of texts. In an iterative process, we first read the major theoretical contributions, trying to identify the most basic, discrete and logically separable understandings. Here, we noticed that in addition to the initial two understandings we had identified, there is a third understanding distinguished not by the cause–outcome dichotomy, but by its temporality. Energy democracy is either something already present, or

something that will gradually emerge (or perhaps will never be fulfilled).

Although these ideal-typical understandings sometimes coexist in individual papers, they are logically mutually exclusive. In the following three sub-sections we elaborate on these understandings, illustrating the abstract ideal-types with examples of studies that appear to share them, acquired through a reading of the full set of 188 publications (only some of which engaged with the concept of energy democracy to the extent that one of these understandings could be assigned).

2.2. A process

Within the first understanding of the term that we have identified, energy democracy is both an ongoing process and a social movement driving the process forward [186]. The significant element here is the actuality of energy democracy – it is already here, and is spreading [152] or being 'silenced' [74]. This seems to be a logical corollary to the assertion that energy democracy 'cannot be separated from its roots in activism and enactment through a range of localized struggles' [9]. Energy democracy is therefore 'an emergent social movement' advancing renewable energy transition 'by resisting the fossil-fuel-dominant energy agenda while reclaiming and democratically restructuring energy regimes' [13]. It is thus characterized as involving 'three related but discrete approaches to facilitating renewable energy transformation; energy democracy includes efforts to *resist*, *reclaim* and *restructure* energy systems' [70,77,99].

The dynamic and process-oriented understanding of energy democracy is clearly laid out by Chilvers and Pallett, who argue that 'energy democracy and energy publics are not narrowly defined, fixed or pre-given categories [...] but are continually being made, constructed, and remade through the performance of socio-material practices' [7]. This is articulated in the 'relational' language of these authors, opposing any attempt to take energy democracy for granted as a natural or unitary category, and instead proposing 'a more agnostic approach that opens up to the sheer diversities of energy democracies that are continually being performed across energy systems and beyond' [7]. Welton, too, refers to 'an energy democracy movement' [4], albeit with some reservations, while for Hess, Ruiz Cayela and Turhan, energy democracy is a collective action frame, helping to find common ground for participation in and modification of energy policy [25,98,101]. Elsewhere, Delina casts energy democratization as an element of climate action movement identity-building efforts [110].

The understanding of energy democracy as a process/movement is most common in (though it is not unique to, see e.g. [25,43]) North America. There are historical reasons for this, explained in Jones and Reinecke's account of the relationship between democracy and infrastructure in the United States, where 'broad access for all classes and groups of society was typically achieved through the activities of dis-franchised citizens, not the benevolence of private operators or the foresight of policy makers' [195]. In this sense, energy democracy already has strong historical precedents as, by 'framing their demands in terms of rights and the public good, average Americans pressured corporations through regulatory bodies, broadcast their grievances in the media, organized politically, and even built alternative systems of their own' [195].

Rooted in that experience, energy democracy 'can be understood as a contemporary expression of decentralized grassroots movements of the 1970 s, the 1980 s and before' [80]. Burke and Stephens cast 'the energy democracy movement' (note the definite article) as an heir to the movement that tried to 'connect antinuclear activism and concerns about the geopolitical instability of fossil fuels with calls for local direct action and visions of "technological democracy"' [80]. Similarly, Fairchild and Weinrub position the energy democracy movement as 'a growing current in the clean energy and climate resilience movement' [152,153]. This narrative is at odds with the European experience in

two regards. Firstly, because of the very different role played by governments and states in energy sector governance, not least in those European countries that experienced communist rule. Secondly, the eclectic movement that Burke and Stephens describe in the United States has in Europe given rise to the Green parties, and has thus become relatively more institutionalized, advanced and integrated into the political landscape [149,196]. And so, while the references are familiar, and grassroots initiatives (particularly urban movements and cooperativism, e.g. [19,132]) are also at the core of energy democracy in the European version, the understanding presented by Burke and Stephens of energy democracy remains context-specific and narrow.

In understanding energy democracy as a process, the social movement becomes a prime mover, either epitomizing the concept or making it happen. This helps facilitate the spread of energy democracy to other actors, such as 'climate justice activists, some trade unions and academics, and political parties', and ensures energy democracy is 'put into practice through project-level, municipal, regional and national experiments' [80]. Unsurprisingly then, the most popular definition of energy democracy in this part of the literature is articulated as the slogan: *resist, reclaim and restructure* [13,70,77,91]. While this definition allows for the description of activist strategies, as a category of practice rather than analysis it is not suitable for comparing legislation, policy outcomes or degrees of energy democratization attained. This, however, was never the aim of proponents of energy democracy as a process and movement. As Feldpausch-Parker et al. lay it out [9]:

research on energy democracy seeks to (1) understand, critique, and theorize energy system transition from a lens of democratic engagement; (2) articulate energy democracy as a 'transdisciplinary network' of engaged research that blends scholarly inquiry with practical action toward making a difference; and (3) advocate for research-informed models and practices that contribute to making energy transitions and decisions as democratic as possible within a nexus of global patterns of energy extraction, production, and consumption.

2.3. An outcome

Logically speaking, the opposite understanding of energy democracy as a cause of change is one that casts it as an outcome. The causal factors are then, in turn, *material* – which is often taken to mean a combination of socio-technical and techno-economic elements [197]. While Burke and Stephens rightly point out that these factors can be mutually constitutive, and energy transitions involve both 'forms of power and modern life that enable and are enabled by renewable energy systems' [80], the crucial argument is about the uniqueness of the spatial distribution of energy infrastructures and *materiality* of renewable energy systems [2,26,34,82,100,198]. According to this perspective, it is the changes in how energy systems are organized, with a gradual shift to low-carbon and renewable sources – more intermittent, distributed, and scalable – that should lead to a 'creative reconfiguration of social relations' [135] and act as a catalyst for social innovation. Simply put, thanks to scalable and distributed renewable generation, 'energy democracy ... would become possible worldwide' [151].

In this line of thinking, the technological transition comes first, thereby enabling political and social change, as in the case of Europe [20,78,102], most visibly in the context of Germany's *Energiewende* [57,172,181]. Other cases in which researchers see this mechanism at play include solar power deployment in Portugal, which initiated a debate and a shift in accountability perceptions [123]; biogas development in Ukraine as a bottom-up path to energy independence [199]; the switch to collective heating in Flanders [55]; and changes in community engagement in Austrian communities under a national policy labelled the Climate and Energy Model [59]. Similarly but with deeper consequences, Lennon shows that in the United States broader deployment of renewables led to a paradigm shift of sorts among white-

collar energy experts, changing their perspective on energy issues towards more holistic, intersectional, and ultimately democratic and even anti-racist positions [146]. Thombs observes that different pathways, decisions, policy frameworks and technological choices can lead to different energy democracy outcomes – presented as a matrix of centralized or decentralized and monopolistic or democratic energy futures [5].

From this point of view, we should not overemphasize the capacity of social movement mobilization and diffusion of ideas, as it may be that – unsurprisingly for a more historical materialist perspective – the material base has greater influence on the ideational superstructure than vice versa, meaning it is mainly the political economy and technology determining the speed and direction of transitions, not (merely) values. Ajaz convincingly shows that environmental values and preference for energy choice or energy democracy among citizens are *not* reasons for increased deployment of distributed renewable energy installations and micro-grids – and that it might therefore make more sense to look at energy democracy as an outcome of rather than rationale for change [87].

This also implies that technological change can open a space for democratization outside the already democratic Western context, on which the energy democracy literature tends to focus. For instance, Delina describes how the materiality of local renewable energy projects in Thailand enabled some degree of energy democracy 'outside the realms of state-sanctioned and government-fostered apparatuses for public engagement' [188,189], while others review the possibilities of achieving similar effects in Africa [17,41,92]. Tsai in turn looks at the authoritarian Persian Gulf regimes, describing how energy transition may contribute to changing the terms of the social contract on which these regimes rely [61].

This understanding of energy democracy invites a stronger emphasis on what van Veelen and van der Horst call 'material democracy' [68] – the need to consider the specificity of renewable energy as a spatially unevenly dispersed resource, and how it affects the conceptualization of democracy more broadly [65]. Energy democracy as an outcome of energy transition plays the role of structure-focused flipside to the agency-oriented understanding of energy democracy as process and movement. However, these two understandings of energy democracy may in fact be so far apart that they are actually talking about different things, and so have limited capacity for meaningful dialogue, merely generating confusion in the process.

2.4. A goal

A third understanding of energy democracy casts it as a goal – an ideal to which communities can aspire, and a principle guiding policies and action towards a just and democratic energy system. Like the 'outcome' understanding, the 'goal' is something in the future. However, it is not brought about by technological shifts alone, but by political change informed by democratic ideals. Thus, like the 'process' understanding, it emphasizes the politicization of energy governance as a means towards its democratization. Even so, it differs significantly in its prescriptive character and the notion that energy democracy can be detached from social activism and evaluated across different dimensions.

Given energy transitions have different outcomes in terms of democracy [5,200], some practitioners and scholars believe these should be evaluated against a goal or benchmark. This is because much energy governance remains or is becoming undemocratic. Energy governance decisions, focusing on manufacturing consent in the debate on 'social acceptance', also involve silencing dissent, as well as enacting restrictions on democratic rights through legislation [201] and the securitization of energy decision-making [113]. Having a tool to evaluate the 'democrateness' of energy policy – that is, the degree to which it meets normative criteria as well as its effectiveness in reaching that goal – does not therefore necessarily reflect a positivist penchant.

Rather, it is a potentially important political tool in the hands of public as well as civil society actors (compare [46,51]). While such a measure can be used at the level of individual policies, policy mixes, projects, municipalities, and politics such as federal units or states – as Harrison and Popke show in an analysis of the Petrocaribe alliance [37] – re-organization of energy systems in a more just and democratic way can also be an ideal at a regional and international level.

Becker and Naumann list *decentralized energy generation, public and cooperative ownership* and *energy sovereignty* as the dimensions of energy democracy [12]. Van Veelen and van der Horst, summarizing the goals found in a broad analysis of existing activist and academic literature, suggest that:

... the electricity system [...], as well as our economy and society should become more inclusive, equitable and low carbon. Secondly, political power and decision-making should be more devolved to the local level. [...] Access to the electricity grid should be widened, especially for new and small renewable electricity producers [and] the ownership base for various aspects of our electricity system should be broadened, [while] greater citizen involvement and ownership should be achieved through voluntary means [68].

Similarly, Szulecki defines energy democracy as a situation where ‘the citizens are the recipients, stakeholders [...] and accountholders of the entire energy sector policy. Governance in energy democracy should be characterized by wide participation of informed, aware, and responsible political subjects, in an inclusive and transparent decision-making process relating to energy choices, with the public good as its goal’, while to create and safeguard civic empowerment and autonomy, ‘high levels of ownership of energy generation and transmission infrastructure through private, cooperative or communal/public means are necessary’ [2]. In legislative proposals, energy democracy is framed as either *consumer choice*, *local control* or *access to the decision-making process* [4]. Van Veelen, in turn, focuses on the purely political and procedural dimensions of ‘energy democracy in practice’, evaluating *inclusivity in decision-making*, *accountability of decision-makers*, and the ways in which *disagreement* is handled in community energy initiatives [162].

As an ideal, energy democracy can be linked to or merged with other normative agendas. Alarcón Ferrari and Chartier explore the relationship between energy democracy and de-growth, and cast the former as ‘a normative proposal that aims at articulating prospects for reduction of consumption, resource efficiency, use of renewable sources of energy and community empowerment’ [176]. Similarly, other authors look for ways to bring together environmental sustainability and democratization in the context of climate action and energy transitions [21,129], in the process calling for expanded energy suffrage and a more holistic approach to sustainability thinking – one that includes entire value chains and life-cycles of technologies and fuels [120]. Taken together, energy democracy ‘unties demands for a decentralized, democratic, renewable, and socially just energy future’ and is regarded as having the potential to become an alternative to ‘top-down, centralized and neo-liberal’ visions, recognizing as it does the immanent political nature of energy transitions and their spatial and scalar multiplicity [15].

Given that energy democracy is understood as a goal, ideal or even something of a techno-political utopia in this part of the literature, a complete democratization of energy – as in all energy generation and supply being controlled and owned by citizens’ groups – is ‘not likely in the near future’ [135]. This does not necessarily weaken the concept – in fact, one could argue that energy democracy as an ideal is powerful precisely because it is abstract and remote. However, while the openness and fluidity of a concept allow for constant re-interpretation and re-framing by different actors and are thus useful for purposes of political mobilisation, the same features weaken it as an analytical concept, creating misunderstandings among scholars. What we hope to contribute is a more orderly distinction between the different practical uses

of energy democracy and some possible common denominators for the purpose of analysis.¹

3. Problems and controversies

The three understandings of energy democracy discussed in the previous section are summarized in Table 3. One insight we can gain from our review is that energy democracy as an idea is polyphonic and difficult to pin down. However, given the same could be said about many social science concepts, this begs the question: is it a problem to have a loose and broad concept of energy democracy covering a multitude of views and understandings? Not necessarily. However, the ‘theories behind those visions and the changes in energy governance that they require are different enough that regulators may have a difficult time squaring simultaneous pursuit’ of the various goals [4]. While differences between understandings of energy democracy ought to activate a productive tension, they can also lead to the idea becoming disjointed [30].

Furthermore, whereas the previous section dived into the academic debate on energy democracy, the most interesting tensions are occurring at the interface between democracy and energy transition governance. As the concept of energy democracy has gained currency, so new kinds of socio-political conflict about decision-making, participation and ownership have arisen, among which the French ‘yellow vests’ movement is most often cited. Though Stephens argues they can also be viewed as part of the energy democracy movement [77], others – while not denying the reality of the grievances such protest movements articulate – are warier of their overall impact given the ‘yellow vests’ started out as a protest against environmental taxes, among other things. What, then, are the implications for the literature? Below, we discuss several problems that emerge when energy democracy theories meet energy transition realities.

3.1. The democracy component in energy democracy

‘Infrastructure may be good for democracy, but democracy has usually been necessary to create good infrastructure’ [195], write Jones and Reinecke. But the meaning of ‘democracy’ they imply is clearly different from the deliberative and participatory conception of activists and radical scholars. Unsurprisingly for a term that has become a social movement imaginary, the actual aims and focuses of energy democracy vary between different publications and advocates. As the use of the concept spreads, ‘claims for greater energy democracy are likely to run up against counter-claims in different places or at different scales, whose ontological assumptions about the meanings of democracy they do not necessarily share’ [68].

The proverbial elephant in the room of energy democracy discussions is – perhaps surprisingly – democracy itself. Most often asserted, implied and unspecified, the character of democracy in energy transition calls for more serious reflection. In energy as in other sectors, ‘access is the hallmark of great infrastructure’ [195], and initially, energy ‘democratisation’ was understood as expanding the *access* to particular energy services, most importantly electricity. That was the goal for most governments in the global North in the first half of the 20th century and remains a dream for millions of people in the South. By contrast, today’s calls for the democratisation of energy systems are made by those in the relatively comfortable position of enjoying energy

¹ We thank one of the anonymous reviewers for pointing out the Weberian argument that can be made in favour of diffuse and vague concepts in democratic political struggles. On the other hand, there is Sartori and the pursuit of clear and defined concepts as an important foundation of the social sciences. The distinction between the realm of ‘practice’ and that of ‘analysis’, as well as a strong argument for keeping them clearly separate, has for many years been made by Rogers Brubaker in his different works.

Table 3
A taxonomy of understandings of ‘energy democracy’

Understanding	Driving force	Dominant democracy theory	Relation to the state	Keywords
Process	Agency	Direct, deliberative and participatory - implicit	Resist and create a parallel civil society sphere	Movement, civil society, resist, reclaim, restructure
Outcome	Materiality	Material democracy	Technology conditions politics	Socio-technical change, community energy, decentralization
Goal	Multidimensional	Different sources from Socialist to Liberal thought, emphasis on participation - explicit	Engage, evaluate policies and expand citizens' involvement	Principles and standards of democratization, policy evaluation

access and follow a broader tendency towards deepening democratic participation in public policy to make it more legitimate [2]. The merging of energy and environmental regulation necessitated by climate change mitigation, as well as the increased number of energy system stakeholders, constitute a new ‘democratisation of energy’ according to Tomain [202]. The ‘first wave’ of energy democracy can be seen as demand- and consumer-focused, and the ongoing ‘second wave’ is shifting attention towards supply and production, or the entirety of energy system governance.

While Szulecki [2] has tried to tackle the question of ‘what is democratic in energy democracy’, that attempt represents a prescriptive effort drawing on different strands of democracy theory. Instead, building on the three categorizations of energy democracy understandings discussed in Section 2, we can explore the ideas, theories and imaginations of democracy underpinning them.

The smallest common denominator of democrateness can perhaps be expressed in the following definition: democracy ‘is a way of making binding, collective decisions that connects those decisions to the interests and judgements of those whose conduct is regulated by the decisions’ [203]. However, from the point of view of democracy theory, this vision is not neutral but visibly leans towards more deliberative, direct and participatory approaches. The emphasis on direct, unmediated and immediate democratic governance is visible across the field. As might be expected, it is the activist-focused understanding of energy democracy as process/movement that uses the language of deliberative and participatory democracy most often, even if Dryzek [204,205] or Della Porta [206] are not explicitly referred to. Many of the same inspirations can be found in the understanding of energy democracy as a goal, however, as these are more often articulated in theoretical and normative terms, references are more explicit, and there are other ‘dimensions’ of democracy beyond direct citizen involvement considered. These can include a distributive dimension, drawing either on Marxist theorists or, in liberal versions, Rawls [207]. They also address the procedural and discursive dimension, in the spirit of Dahl [208], Habermas [209] or Tocqueville [210]. The understanding of energy democracy as an outcome of technological change stands out, as it is the only one that clearly builds on a material democratic imaginary, in which infrastructure is not only the backdrop but fundamentally shapes democratic politics [198,211].

As difficult as it may be to understand the positive democratic content of energy democracy proposals, one thing is clear – they all emerge out of critique and dissatisfaction with current energy politics and governance, implying these are in one way or another undemocratic or faulty, though energy decision-makers in democratic countries would most likely disagree with such an assessment.² The idea of energy democracy needs to be related to the demand for increased accountability and democratization in a sector previously seen as apolitical and not requiring public involvement. The technocratic and expert-driven nature of energy governance stand in contrast to what Rosanvallon calls ‘democracy of proximity’ [212], while calls for more meaningful democratic involvement are articulated against what Achen and Bartels [213] call ‘folk theories of democracy’. From the point of view of governance theory, many proposals expressed under the banner of ‘energy democracy’ are in fact calls to switch from centralist and expert-centred governance to more interactive network governance. However, as Sørensen and Torfing [214] point out, such a switch carries both democratic potentials and problems.

3.2. Idealisation of the grassroots?

One trap into which part of the energy democracy literature appears to be falling is the uncritical assumption that small, local and bottom-up is inherently superior to large-scale, centralized energy systems.

² We thank one of the anonymous reviewers for pointing this out

'Community' has come to be associated with 'good' and 'green', reflecting a tendency to 'assume rather than demonstrate' that community projects are more democratic or just [188,214]. Van Veelen [188] and Bauknecht and colleagues [155] are in the minority when they ask if small is always beautiful, critically looking at the practice of community energy and participatory governance rather than just normative theory. How energy democratization plays out on the ground can have hard-to-predict, counterintuitive effects that may go against the intentions of activists and planners. For instance, increased participation can also reinforce existing inequalities, as people who have the time and resources (financial, socio-cultural) to participate tend to be those who are already privileged.

Activist-derived accounts tend to build on an idealised image of deliberative and direct democracy, as well as the romanticising of communities [29,154,159,160,187]. As many types of local politics abundantly demonstrate – neighbourhood committees, school fairs, housing cooperatives etc. – shared interests cannot be taken for granted. Homogenous communities where locally evolved norms and collaborative processes enable sustainable and equitable management of resources are, in many cases, a myth [162]. While interactions within communities and energy democracy projects can lead to compromises, they may also result in tensions and conflicts, for example among different logics or interest groups. Energy democracy can therefore be seen as 'a complex and dynamic social construction contrasting actors with different visions of democracy' [29] [our translation]. There are also important differences between local and wider publics, and the different scales of energy democracy and contention must be kept in mind and correctly conceptualized in order to unpack their differences [147]. This also involves addressing the question of public debate – how is it working, who participates, and what is the role of the media in framing energy policy issues? [215].

Finally, grassroots actors do not necessarily opt for low-carbon solutions, as shown by the 'yellow vests' protesting against fuel tax increases in France, or the Norwegian toll-road protest movement proudly advocating a fossil-fuel car culture. A case study of Switzerland shows that energy democracy, understood as broadening participation, may have adverse effects on decarbonisation [112]. All in all, there remain many questions concerning the role of communities in energy transitions [40].

3.3. Resist whom? Reclaim what? Restructure how?

Other building blocks of energy democracy also merit a critical look, as scholars clearly have diverse views in this regard, with different authors regarding the same central actors and concepts as being either crucial or detrimental for energy democratization. There is therefore a need to disentangle such basic concepts as 'community', 'public ownership', 'the state' and 'the private sector' – something Creamer et al. have attempted [40]. In addition, it is useful to carefully map the policy networks and actors involved, as Poupeau has done [16]. Emelianoff and Wernert emphasize tensions between municipal authorities and central governments – whereas both can potentially be categorized as 'the state', the former can in some contexts be thought of as part of 'the community' [36]. Judson and colleagues, meanwhile, show that even 'decentralization' is something of a weasel word and 'means many things to many people' [18].

Differences in departure points and nuances in meaning, as well as objective differences in political systems, varieties of capitalism etc., give contrasting pictures of the need for and pathways towards energy democracy. This is well illustrated by borrowing the three Rs – *resist*, *reclaim* and *restructure* – of the North American energy democracy movement, and investigating the subjects and objects of these three verbs [77].

A contentious issue here is the role of the state – is it an agent of capital or something that can tame anti-social incumbent interests? Here too there is a visible difference between the North American

literature – which focuses on 'resisting' the private sector [145,163,216], or even a 'corporate oligarchy' [81] – and the European one, which sees energy democracy predominantly as a public policy issue, with citizens having to engage and win over the state in order that they can regulate private energy actors together.

This is not to say there is no awareness of the problem of policy capture by private sector incumbents in Europe [88,119], or conversely of 'state encroachment' [113], on the energy sector in North America, both of which relate to the fuzzy borders between the two (public and private sector) and individuals passing through the metaphorical 'revolving door' [217]. On the contrary, resistance can take the form of co-regulation or self-governance in the 'shadow of hierarchy', to use the policy analysis metaphor [218], rather than a struggle between civil society actors and capital. Furthermore, energy transition towards a more renewables-based system has led to the emergence of intermediary organizations and 'spaces' that challenge the community/state binary on which much of the literature appears to rely [22,62].

An important reason for this is that while parts of the public oppose decarbonisation measures for a variety of reasons, many politicians or proverbial bureaucrats in Brussels are very supportive of ambitious climate action and energy transition. Calls for energy democracy through greater community control have begun to transcend social movements, gaining the attention of policymakers [162]. Energy democracy is becoming a rationale of public policy, meaning suddenly there are civil servants, including EU technocrats, who are not necessarily democratically elected, acting as its agents [219]. The EU's regulatory framework supporting prosumerism [102], consumer co-ownership and community energy was institutionalized in the 2016 legislative package 'Clean energy for all Europeans' [220], comprising regulatory changes and directives in the areas of electricity markets, renewables, energy efficiency, buildings and the governance of the Energy Union [221].

Another question is: what is to be 'reclaimed' by energy democracy? Reclaiming implies that once-public energy systems were taken over by private businesses, which is a major historical inaccuracy, as in reality the opposite is true for many cases. Another interesting observation is that for many proponents of energy democracy it is only energy production that has to be democratized, rather than the energy system more generally, meaning that most studies focus on electricity, with heating mentioned sporadically [55,109]. According to Allen et al.:

Reclaim involves the democratization of the energy industry and sources of energy generation. Specifically, this describes individuals and communities reclaiming control over decisions about their energy supply [and] returning parts of the energy system that are controlled by private, for-profit corporations to the public, and establishing new publicly owned and managed energy providers [91].

Such public ownership is already a fact in many contexts, and the borders between 'private', 'for-profit' and 'public' are often blurry. Furthermore, public or state ownership does not immediately solve other important energy democracy issues, as is clear from contexts in which state-owned or controlled energy monopolies – sometimes citing social welfare or developmental needs – are deeply entrenched against decarbonisation, or closely tied to the interests of elites [113,217].

This leads to the final question of how the 'restructuring' should be organized. The public vs. private dichotomy appears to be misleading, as prosumerism – which is supposed to include the democratisation of the means of energy production – usually involves expanding private ownership. This in turn signals an important divide evident within both energy democracy movements and literatures, between those who emphasize energy citizenship (with a focus on individual/household involvement and ownership) and those focused on energy communities [68]. Despite sharing a common imaginary of 'associative democracy' – modelled on 19th century liberal and radical ideals, underlining how ownership at the local level should create new kinds of political bonds and dynamics – they ultimately part ways on ideological grounds,

resulting in more radical Left and Liberal visions.

Overall, however, democratization should be achievable in both, whether through prosumer self-organization, rural electricity co-operatives [19,170], or municipal utilities [21,36,222] – the point is not so much the form but the ‘fundamental reorganisation of the political economy that promotes democratic and just processes and outcomes across various social spheres’ [5]. Becker, Angel and Naumann, drawing on Henri Lefebvre, propose the socialist idea of ‘autogestion’ as a key principle of democratic governance. Autogestion translates as self-management, in a sense distinct from forms of participation based on ‘a more or less elaborate pretence at information and activity, [after which citizens] return to their tranquil passivity and retirement’ (Lefebvre cited in [32]). Instead, autogestion portends a general claim of ‘new forms of decentralized, democratic political control’ in ‘various sectors of social life’ [32]. Restructuring is, then, less about changing the form of ownership than achieving a new form of politics perhaps enabled by the energy transition.

3.4. Energy democratization and energy populism

The issue of democracy as a necessary element of climate change mitigation and decarbonisation efforts is attracting growing attention [223]. While from a liberal democratic point of view democracy may seem an inherent part of any effective response to climate change, broader comparative research shows that though democracy may be desirable in its own right, it does not guarantee success in decarbonisation [129,224]. This is highlighted by comparing non-democratic China with the democratic United States. China, with its many ambitious low-carbon energy projects, demonstrates if not of the superiority of authoritarian governance in effectively facing climate change, then at least that democracy is not necessary to act. Meanwhile, the United States under President Donald Trump has taken on the role of decarbonisation spoiler. Scholars have frequently noted the ways in which ‘democratization’ of government can hamper its effectiveness, efficacy, transparency and responsiveness [4], including in the energy sector.

The energy democracy literature also pays little attention to one of the main risks posed by any form of democracy: populism. The populist threat to energy transition exists at two levels. First, existing populist political forces, particularly on the right, can be seen as a threat to ambitious climate action and decarbonisation strategies [225–227], something already being realized in – among other places – the United States under the Trump administration and Secretary of the Interior Ryan Zinke [74]. However, the second and more serious issue is the potential for energy democratization itself to become a populist stance. That risk is especially associated with what we have defined as energy democracy as a process driven by a social movement, as populism can be an unintended by-product of a bottom/up challenge to established institutions, modes of governance and sources of authority.

Drawing on contemporary works on populism [228–230], ‘energy populism can be defined as a political discourse that pits the supposed interests of “the people” against “the elites”, often combined with resource nationalism, suboptimal but popular economic solutions such as subsidies, and promises of an easy life’ [231]. Despite the existing scholarly focus on populist political parties and movements, we suggest a more productive approach would be to explore the ways in which populist and anti-elitist logics manifest themselves in energy policy conflicts [97]. This involves an understanding of energy as a sector where ‘elites’ play an important role [52,75], as well as being characterized by an ‘epistemic asymmetry’ between citizens and experts [232].

One example of energy populism is the popular mobilization against the installation of electricity interconnectors in Norway, which is based on arguments about the usurpation of power by elites, the threat of foreign electricity buyers, and demands for continued cheap electricity – all of which ignores the fact that analyses show that the

interconnectors are in Norway’s national economic interest, support decarbonisation in Europe and only result in a moderate rise in electricity prices in Norway. It is surprising that this resistance should occur in Norway, where the introduction of a CO₂ tax ahead of most other countries was decidedly non-populist [233]. Part of the reason for this change may actually stem from the growth of energy democracy itself, in the sense of the opening of discursive spaces related to the management of energy infrastructure and increasing engagement of the public. When the original Norwegian CO₂ tax was introduced in 1991, and also when the country’s petroleum regime was established in the 1960 s and 1970 s, there was far less public involvement, with many of the decisions left to key politicians and ministerial technocrats. Similar examples can be found in other countries.

While energy democracy assumes an interested and potentially engaged public [47], energy governance is still for many people a domain of technocratic expertise. A study conducted in Finland has shown that on energy policy issues, people support ‘stealth democracy’, preferring experts and businessmen to elected officials as energy policymakers, while the political elite favoured elected officials [234]. For decades, energy has been and very much remains a ‘taken for granted necessity confined to the world of engineers’ [12] – overcoming such attitudes requires innovation in research [35,124], governance [2], and education strategies [79]. ‘Greater democratic engagement’, writes Stephens, ‘would offer communities [...] stronger mechanisms to steer energy system changes’ [79]. This may indeed be the case, but as the examples above show, and as Burke and Stephens recognize [80], democracy has important limitations linked to the political ambiguities of the renewable energy transition and competing agendas. Authors following a non-liberal approach to populism inspired by Ernesto Laclau are inclined to perceive it as a necessary corrective of technocratic politics and elite-driven representative democracy, flowing from legitimate grievances [45,97]. Similarly, adopting a political ecology perspective, Bridge and colleagues emphasize that communities resisting particular energy infrastructures often face police violence and accusations of NIMBY-ism, while their demands should be taken seriously as these grassroots movements often display ‘capacity for envisioning new transition pathways that promote environmental sustainability and social justice’ [235], or show ‘what it means to live a just and good life within energy transition processes’ [39]. Evidence from both North America and Europe exists of the corrective influence of such movements on energy governance.

While this is an important point, it should not be taboo among engaged researchers to ask whether in certain circumstances this may lead to something akin to *too much* democracy, and whether particularistic goal-seeking leading to populist mobilization may in fact be the inevitable price of uncritical emphasis on increased democratic participation. This links to the paradox of scales, where broad declared support for energy transitions at the national level covers up NIMBY-ism at the local level [31,72,95,147]. There is also a renewed urban–rural political cleavage, as in many contexts (e.g. Germany) rural communities have greater (albeit unequal) opportunities to reap the benefits of energy transitions [14], while urban populations perceive themselves as carrying the costs. This argument, however, can also be reversed, as rural communities must cope with newly deployed infrastructure, while urban centres are often the political drivers of Green politics.

NIMBY-ism, much like populism, can be seen as ‘demand for democracy’, which under the right conditions can turn into a PIMBY (please in my back yard) ‘response of democracy’ [1]. While environmental education and awareness raising can contribute to this end [54,79], the sobering experience of liberal overreliance on the power of education in other sectors where populism and particularism join forces should be borne in mind. Clearly, a feeling of recognition, ownership and responsibility, as well as the appropriate socio-economic conditions to exercise energy citizenship, are necessary to prevent energy democracy from backsliding into energy populism – just as similar prerequisites are required for a functional and robust liberal democracy.

Selk and Kemmerzell offer the most sophisticated theoretical proposal aimed at solving the problems of political conflicts around energy transitions [232], presenting them not so much as a challenge to, but the manifested triple challenge of, democracy: the progressive politicization of society; increasing political differentiation; and the increasing epistemic asymmetry between the expert caste and the populace. In this frame, populism is one of the answers put forward to these challenges, alongside technocratic guardianship (the traditional ideal of energy governance revived) and participatory governance (energy democracy). This too means that populism is only a response to the deficiencies of the other two approaches. Meanwhile, energy democracy retains its position as the ideal bridge between technocracy and populism, promising to reduce the deficiencies of both.

4. Conclusions

Energy democracy has evolved from being a term used by activists demanding a greater say in energy-related decision-making, particularly in the context of climate and decarbonisation policy, to a term used in policy documents and increasingly in the scholarly literature concerning energy governance and energy transitions. While not yet as well-established a term as 'energy justice', 'energy democracy' is finding its place in energy debates.

The concept of energy democracy remains fluid and flexible, allowing researchers to interpret the concept from the perspectives of real players in real situations. However, to improve communication, more conceptual clarity is needed.

One of our most striking findings about the literature is its fragmentation, resulting in a lack of communication between proponents of different energy democracy interpretations. Particularly apparent is the split between the North American and European schools. As a protocol of the different interpretations of what energy democracy constitutes, we have presented three understandings of the term. These aim at promoting dialogue and mutual understanding. Energy democracy can be perceived as a *process* (and an existing movement); an *outcome* (the reconfiguration of social relations as a result of changes in the energy system); or a *goal* communities and other stakeholders can aspire to (but which is unlikely to be achieved in the near future).

This conceptual review has also identified several issues that affect the understanding and interpretation of energy democracy across the board. For instance, while activists have traditionally tended to idealise the grassroots, it is clear that energy democracy cannot rest on a notion of local communities as being homogenous or inherently ethical or altruistic. They may also seek short-term self-interested goals, just as corporations and short-sighted governments do.

In future research, there is a need to further clarify and disentangle the basic concepts used in these debates, such as 'community', 'public ownership', 'the state', 'the private sector' and 'capital'. There is also a need to establish which forces are working against which other forces, where the balance of power lies, and who is really contributing to decarbonisation in an energy democracy context. Of particular concern when discussing calls for greater energy democracy is the rise of populism in contemporary politics, and the extent to which this may undermine or lead astray the drive towards decarbonisation. This is because populist policies frequently focus on short-term benefits and the retention of old, fossil fuel-based business models – as well as the jobs and lifestyles they support – at the expense of low-carbon innovation and re-skilling. However, the most important challenge for future research on energy democracy lies in specifying what precisely is democratic in the proposals being made, how it affects the status quo, and whether it actually constitutes value added. This requires both greater theoretical sophistication and more specific empirical study of the impacts emergent 'democratized' governance networks have on energy policy.

Ultimately, the concept of energy democracy may endure precisely because of its fluidity and plurality, although it will need to integrate

itself much better with literatures and debates that explore related issue areas. Moreover, it cannot be taken for granted that more energy democracy equates to better and faster decarbonisation, energy access or societal wellbeing. Instead, a balance must be sought based on well-researched evidence, and this may be the true value of achieving an eclectic, diverse, but well-networked field of energy democracy research.

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References

- [1] C. Taylor, Energy Union as "energy democracy", *Energy Post* 2015 (2015).
- [2] K. Szulecki, Conceptualizing energy democracy, *Environmental Politics* 27 (1) (2018) 21–41, <https://doi.org/10.1080/09644016.2017.1387294>.
- [3] I. Overland (ed.). *Public Brainpower: Civil Society and Natural Resource Management*. Cham: Springer International Publishing; 2018.
- [4] S. Welton, Grasping for Energy Democracy, *Mich. Law Rev.* 116 (581–644) (2018).
- [5] R.P. Thombs, When democracy meets energy transitions: A typology of social power and energy system scale, *Energy Res. Social Sci.* 52 (2019) 159–168, <https://doi.org/10.1016/j.erss.2019.02.020>.
- [6] K. Jenkins, Energy Justice, Energy Democracy, and Sustainability: Normative Approaches to the Consumer Ownership of Renewables, in: J. Lowitzsch (Ed.), *Energy Transition: Financing Consumer Co-Ownership in Renewables*, Springer International Publishing, Cham, 2019, pp. 79–97.
- [7] J. Chilvers, H. Pallett, Energy Democracies and Publics in the Making: A Relational Agenda for Research and Practice, *Front. Commun.* 3 (2018) 273, <https://doi.org/10.3389/fcomm.2018.00014>.
- [8] M. Pichler, U. Brand, C. Görg, The double materiality of democracy in capitalist societies: challenges for social-ecological transformations, *Environmental Politics* 29 (2) (2020) 193–213, <https://doi.org/10.1080/09644016.2018.1547260>.
- [9] A.M. Feldpausch-Parker, D. Endres, T.R. Peterson, Editorial: A Research Agenda for Energy Democracy, *Front. Commun.* 4 (2019) 19, <https://doi.org/10.3389/fcomm.2019.00053>.
- [10] S. Wood, Energy Security, Normative Dilemmas, and Institutional Camouflage: Europe's Pragmatism, *Politics & Policy* 37 (3) (2009) 611–635, <https://doi.org/10.1111/j.1747-1346.2009.00187.x>.
- [11] B. Lee, E. LiPuma, Cultures of Circulation: The Imaginations of Modernity, *Public Culture* 14 (1) (2002) 191–213, <https://doi.org/10.1215/08992363-14-1-191>.
- [12] S. Becker, M. Naumann, Energy democracy: Mapping the debate on energy alternatives, *Geography Compass* 11 (8) (2017) e12321, <https://doi.org/10.1111/gec3.12321>.
- [13] M.J. Burke, J.C. Stephens, Energy democracy: Goals and policy instruments for sociotechnical transitions, *Energy Res. Social Sci.* 33 (2017) 35–48, <https://doi.org/10.1016/j.erss.2017.09.024>.
- [14] M. Naumann, D. Rudolph, Conceptualizing rural energy transitions: Energizing rural studies, ruralizing energy research, *Journal of Rural Studies* 73 (2020) 97–104, <https://doi.org/10.1016/j.jrurstud.2019.12.011>.
- [15] F.C. Paul, Deep entanglements: History, space and (energy) struggle in the German Energiewende, *Geoforum* 91 (2018) 1–9, <https://doi.org/10.1016/j.geoforum.2018.02.017>.
- [16] F.-M. Poupeau, Everything must change in order to stay as it is. The impossible decentralization of the electricity sector in France. *Renewable and Sustainable Energy Reviews* 2020;120:109597. Doi: 10.1016/j.rser.2019.109597.
- [17] A. Lawrence, Energy decentralization in South Africa: Why past failure points to future success, *Renew. Sustain. Energy Rev.* 120 (2020) 109659, <https://doi.org/10.1016/j.rser.2019.109659>.
- [18] E. Judson, O. Fitch-Roy, T. Pownall, R. Bray, H. Poulter, I. Soutar, et al., The centre

- cannot (always) hold: Examining pathways towards energy system de-centralisation, *Renew. Sustain. Energy Rev.* 118 (2020) 109499, <https://doi.org/10.1016/j.rser.2019.109499>.
- [19] B. Klagge, T. Meister, Energy cooperatives in Germany – an example of successful alternative economies? *Local Environment* 23 (7) (2018) 697–716, <https://doi.org/10.1080/13549839.2018.1436045>.
- [20] H.-J. Kooij, M. Oteman, S. Veenman, K. Sperling, D. Magnusson, J. Palm, et al., Between grassroots and treetops: Community power and institutional dependence in the renewable energy sector in Denmark, Sweden and the Netherlands, *Energy Res. Social Sci.* 37 (2018) 52–64, <https://doi.org/10.1016/j.erss.2017.09.019>.
- [21] L. Teron, S.S. Ekoh, Energy Democracy and the City: Evaluating the Practice and Potential of Municipal Sustainability Planning, *Front. Commun.* 3 (2018) e12321, <https://doi.org/10.3389/fcomm.2018.00008>.
- [22] B. van Veelen, W. Eadson, Assembling community energy democracies. *volunt sect rev* 2019. Doi: 10.1332/204080519X15740562779512.
- [23] Ö. Yildiz, J. Sagebiel, Consumer (Co-)Ownership and Behaviour: Economic Experiments as a Tool for Analysis, in: J. Lowitzsch (Ed.), *Energy Transition: Financing Consumer Co-Ownership in Renewables*, Springer International Publishing, Cham, 2019, pp. 99–112.
- [24] M. Swilling, *The age of sustainability: Just transitions in a complex world*, Routledge, Abingdon, Oxon, New York, NY, 2020.
- [25] S. Ruiz Cayuela, E. Turhan, Wasting Democracy, Fueling Dissent: Refuse-Derived Fuels in Can Sant Joan (Catalonia), *Front. Energy Res.* 6 (2019) 321, <https://doi.org/10.3389/fenrg.2018.00142>.
- [26] Y. Rumpala, Alternative Forms of Energy Production and Political Reconfigurations: Exploring Alternative Energies as Potentialities of Collective Reorganization, *Bull. Sci. Technol. Soc.* 37 (2) (2017) 85–96, <https://doi.org/10.1177/0270467618766995>.
- [27] C. Star, Re-making the Future: Transition Movements and Dismantling the Environment-Economy Dichotomy, in: G. Wood, K. Baker (Eds.), *The Palgrave Handbook of Managing Fossil Fuels and Energy Transitions*, Springer International Publishing, Cham, 2020, pp. 505–527.
- [28] C. Hunsberger, S. Awâsis, Energy Justice and Canada's National Energy Board: A Critical Analysis of the Line 9 Pipeline Decision, *Sustainability* 11 (3) (2019) 783, <https://doi.org/10.3390/su11030783>.
- [29] T. Blanchet, C. Herzberg, Les enjeux démocratiques de la transition énergétique territoriale enquête sur la coopérative énergétique citoyenne de Léna, *Lien social et Politiques* 82 (2019) 139, <https://doi.org/10.7202/1061880ar>.
- [30] M.J. Burke, Shared Yet Contested: Energy Democracy Counter-Narratives, *Front. Commun.* 3 (2018) 73, <https://doi.org/10.3389/fcomm.2018.00022>.
- [31] M. Busse, R. Siebert, N. Heitepriem, Acceptability of innovative biomass heating plants in a German case study—a contribution to cultural landscape management and local energy supply, *Energy Sustain Soc* 9 (1) (2019) 317, <https://doi.org/10.1186/s13705-019-0215-2>.
- [32] S. Becker, J. Angel, M. Naumann, Energy democracy as the right to the city: Urban energy struggles in Berlin and London, *Environ Plan A* 2019;45(5):0308518X1988116. Doi: 10.1177/0308518X19881164.
- [33] S. Becker, M. Naumann, *Energiekonflikte erkennen und nutzen*, in: O. Kühne, F. Weber (Eds.), *Bausteine der Energiewende*, Springer Fachmedien Wiesbaden, Wiesbaden, 2018, pp. 509–522.
- [34] G. Bekebrede, E. van Bueren, I. Wenzler, Towards a Joint Local Energy Transition Process in Urban Districts: The GO2Zero Simulation Game, *Sustainability* 10 (8) (2018) 2602, <https://doi.org/10.3390/su10082602>.
- [35] A. Ambrose, Walking with Energy: Challenging energy invisibility and connecting citizens with energy futures through participatory research, *Futures* 117 (2020) 102528, <https://doi.org/10.1016/j.futures.2020.102528>.
- [36] C. Emelianoff, C. Wernert, Local energy, a political resource: dependencies and insubordination of an urban “Stadtwerk” in France (Metz, Lorraine), *Local Environment* 24 (11) (2019) 1035–1052, <https://doi.org/10.1080/13549839.2018.1506754>.
- [37] C. Harrison, J. Popke, Reassembling Caribbean Energy? Petrocaribe, (Post-) Plantation Sovereignty, and Caribbean Energy Futures, *Journal of Latin American Geography* 17 (3) (2018) 212–234, <https://doi.org/10.1353/lag.2018.0047>.
- [38] D.J. Hess, Energy democracy and social movements: A multi-coalition perspective on the politics of sustainability transitions, *Energy Res. Social Sci.* 40 (2018) 177–189, <https://doi.org/10.1016/j.erss.2018.01.003>.
- [39] L.T. Clausen, D. Rudolph, (Dis)embedding the wind - on people-climate reconciliation in Danish wind power planning, *The Journal of Transdisciplinary Environmental Studies* 17 (1) (2019) 5–21.
- [40] E. Creamer, W. Eadson, B. van Veelen, A. Pinker, M. Tingey, T. Brauhnoltz-Speight, et al., Community energy: Entanglements of community, state, and private sector, *Geography Compass* 12 (7) (2018) e12378, <https://doi.org/10.1111/gec3.12378>.
- [41] M. Davies, M. Swilling, H.L. Wlokas, Towards new configurations of urban energy governance in South Africa's Renewable Energy Procurement Programme, *Energy Res. Social Sci.* 36 (2018) 61–69, <https://doi.org/10.1016/j.erss.2017.11.010>.
- [42] J.L. MacArthur, C.E. Hoicka, H. Castleden, R. Das, J. Lieu, Canada's Green New Deal: Forging the socio-political foundations of climate resilient infrastructure? *Energy Res. Social Sci.* 65 (2020) 101442, <https://doi.org/10.1016/j.erss.2020.101442>.
- [43] A. Manzella, A. Allansdottir, A. Pellizzone (Eds.), *Geothermal Energy and Society*, Springer International Publishing, Cham, 2019.
- [44] P. Lund-Thomsen, M. Wendelboe Hansen, A. Lindgreen (Eds.), *Business and development studies: Issues and perspectives*, Routledge, Abingdon, Oxon, New York, NY, 2020.
- [45] J. MacArthur, S. Matthewman, Populist resistance and alternative transitions: Indigenous ownership of energy infrastructure in Aotearoa New Zealand, *Energy Res. Social Sci.* 43 (2018) 16–24, <https://doi.org/10.1016/j.erss.2018.05.009>.
- [46] C. Mavrot, S. Hadorn, F. Sager, Mapping the mix: Linking instruments, settings and target groups in the study of policy mixes, *Res. Policy* 48 (10) (2019) 103614, <https://doi.org/10.1016/j.respol.2018.06.012>.
- [47] V. Pellicer-Sifres, Transformative Energy Transition from the bottom-up: exploring the contribution of grassroots innovations in the Spanish context, *Innovation: The European Journal of Social Science Research* 10 (1) (2020) 1–16, <https://doi.org/10.1080/13511610.2019.1705146>.
- [48] J. Radtke, Energiedemokratie durch Bürgerenergie? Die Grenzen finanzieller Bürgerbeteiligung, *GAIA - Ecological Perspectives for Science and Society* 27 (3) (2018) 284–286, <https://doi.org/10.14512/gaia.27.3.7>.
- [49] W.-K. Moon, L.A. Kahlor, H.C. Olson, Understanding public support for carbon capture and storage policy: The roles of social capital, stakeholder perceptions, and perceived risk/benefit of technology, *Energy Policy* 139 (2020) 111312, <https://doi.org/10.1016/j.enpol.2020.111312>.
- [50] O.A. Mykoliuk, V.M. Bobrovnyk, Strategic guidelines on the development of renewable energy sources. *GJESM* 2019;5(Special Issue):61–71. Doi: 10.22034/gjesm.2019.05.SI.07.
- [51] J. Lieu, N. Spyridaki, R. Alvarez-Tinoco, W. van der Gaast, A. Tuerk, O. van Vliet, Evaluating Consistency in Environmental Policy Mixes through Policy, Stakeholder, and Contextual Interactions, *Sustainability* 10 (6) (2018) 1896, <https://doi.org/10.3390/su10061896>.
- [52] R. Kahsar, The psychology of socio-technical systems: Professionalism, power, and personality in the electricity sector, *Energy Res. Social Sci.* 53 (2019) 121–125, <https://doi.org/10.1016/j.erss.2019.03.008>.
- [53] A. Kalfagianni (Ed.), *Routledge handbook of global sustainability governance*, Routledge, Taylor & Francis Group, London, New York, 2020.
- [54] S.N. Jorgensen, J.C. Stephens, B. White, Environmental education in transition: A critical review of recent research on climate change and energy education, *The Journal of Environmental Education* 50 (3) (2019) 160–171, <https://doi.org/10.1080/00958964.2019.1604478>.
- [55] G. Juwet, Exploring the ambiguous socio-spatial potential of collective heating in Flanders. Planning and design as lever for a sustainable energy transition, *European Planning Studies* 52 (2) (2019) 1–21, <https://doi.org/10.1080/09654313.2019.1698519>.
- [56] A.-M. Kennedy (Ed.), *Macro-social marketing insights: Systems thinking for wicked problems*, Routledge, New York, NY, 2020.
- [57] M.D. Leiren, I. Reimer, Historical institutionalist perspective on the shift from feed-in tariffs towards auctioning in German renewable energy policy, *Energy Res. Social Sci.* 43 (2018) 33–40, <https://doi.org/10.1016/j.erss.2018.05.022>.
- [58] B. Lennon, N.P. Dunphy, E. Sanvicente, Community acceptability and the energy transition: a citizens' perspective, *Energy Sustain Soc* 9 (1) (2019) 1, <https://doi.org/10.1186/s13705-019-0218-z>.
- [59] N. Komendantova, S. Neumueller, Discourses about energy transition in Austrian climate and energy model regions: Turning awareness into action, *Energy Environ.*, 2020;01:0958305X2090708. Doi: 10.1177/0958305X20907086.
- [60] J. Lee, J. Byrne, Expanding the Conceptual and Analytical Basis of Energy Justice: Beyond the Three-Tenet Framework, *Front. Energy Res.* 7 (2019) 321, <https://doi.org/10.3389/fenrg.2019.00099>.
- [61] I.-T. Tsai, Political economy of energy policy reforms in the gulf cooperation council: Implications of paradigm change in the rentier social contract, *Energy Res. Social Sci.* 41 (2018) 89–96, <https://doi.org/10.1016/j.erss.2018.04.028>.
- [62] B. van Veelen, Caught in the middle? Creating and contesting intermediary spaces in low-carbon transitions, *Environment and Planning C: Politics and Space* 38 (1) (2020) 116–133, <https://doi.org/10.1177/2399654419856020>.
- [63] J.C. Stephens, P.C. Frumhoff, L. Yona, The role of college and university faculty in the fossil fuel divestment movement, *Elem Sci Anth* 6 (1) (2018) 41, <https://doi.org/10.1525/elementa.297>.
- [64] A. Szolucha (Ed.), *Energy, Resource Extraction and Society: Impacts and Contested Futures*, Routledge, Milton, 2018.
- [65] B. van Veelen, A. Pinker, M. Tingey, G. Taylor Aiken, W. Eadson, What can energy research bring to social science? Reflections on 5 years of Energy Research & Social Science and beyond, *Energy Res. Social Sci.* 57 (2019) 101240, <https://doi.org/10.1016/j.erss.2019.101240>.
- [66] K.S. Wolske, More alike than different: Profiles of high-income and low-income rooftop solar adopters in the United States, *Energy Res. Social Sci.* 63 (2020) 101399, <https://doi.org/10.1016/j.erss.2019.101399>.
- [67] S. Zhou, D. Noonan, Justice Implications of Clean Energy Policies and Programs in the United States: A Theoretical and Empirical Exploration, *Sustainability* 11 (3) (2019) 807, <https://doi.org/10.3390/su11030807>.
- [68] B. van Veelen, D. van der Horst, What is energy democracy? Connecting social science energy research and political theory, *Energy Res. Social Sci.* 46 (2018) 19–28, <https://doi.org/10.1016/j.erss.2018.06.010>.
- [69] M. Warneryd, M. Håkansson, K. Karltorp, Unpacking the complexity of community microgrids: A review of institutions' roles for development of microgrids, *Renew. Sustain. Energy Rev.* 121 (2020) 109690, <https://doi.org/10.1016/j.rser.2019.109690>.
- [70] J.C. Stephens, M.J. Burke, B. Gibian, E. Jordi, R. Watts, Operationalizing Energy Democracy: Challenges and Opportunities in Vermont's Renewable Energy Transformation, *Front. Commun.* 3 (2018) 391, <https://doi.org/10.3389/fcomm.2018.00043>.
- [71] L. Schwarz, Empowered but powerless? Reassessing the citizens' power dynamics of the German energy transition, *Energy Res. Social Sci.* 63 (2020) 101405, <https://doi.org/10.1016/j.erss.2019.101405>.
- [72] R. Seidl, T. von Wirth, P. Krüti, Social acceptance of distributed energy systems in

- Swiss, German, and Austrian energy transitions, *Energy Res. Social Sci.* 54 (2019) 117–128, <https://doi.org/10.1016/j.erss.2019.04.006>.
- [73] K.S. Rogge, Policy mixes for sustainable innovation: conceptual considerations and empirical insights, in: F. Boons, A. McMeekin (Eds.), *Handbook of Sustainable Innovation*, Edward Elgar Publishing, 2019, pp. 165–185.
- [74] J. Schneider, J. Peeples, The Energy Covenant: Energy Dominance and the Rhetoric of the Aggrieved, *Front. Commun.* 3 (2018) 293, <https://doi.org/10.3389/fcomm.2018.00005>.
- [75] B.K. Sovacool, M.-C. Brisbois, Elite power in low-carbon transitions: A critical and interdisciplinary review, *Energy Res. Social Sci.* 57 (2019) 101242, <https://doi.org/10.1016/j.erss.2019.101242>.
- [76] J.C. Stephens, Assessing resilience in energy system change through an energy democracy lens, in: M. Ruth, S. Gössling-Reisemann (Eds.), *Handbook on resilience of socio-technical systems*, Edward Elgar Publishing, Cheltenham, UK, Northampton, MA, 2019, pp. 341–359.
- [77] J.C. Stephens, Energy Democracy: Redistributing Power to the People Through Renewable Transformation, *Environment: Science and Policy for Sustainable Development* 61 (2) (2019) 4–13, <https://doi.org/10.1080/00139157.2019.1564212>.
- [78] B.K. Sovacool, M. Martiskainen, A. Hook, L. Baker, Beyond cost and carbon: The multidimensional co-benefits of low carbon transitions in Europe, *Ecol. Econ.* 169 (2020) 106529, <https://doi.org/10.1016/j.ecolecon.2019.106529>.
- [79] J.C. Stephens, Innovations in Energy-Climate Education: Integrating Engineering and Social Sciences to Strengthen Resilience, in: E. Subrahmanian, T. Odumosi, J.Y. Tsao (Eds.), *Engineering a Better Future: Interplay between Engineering, Social Sciences, and Innovation*, Springer International Publishing, Cham, 2018, pp. 1–8.
- [80] M.J. Burke, J.C. Stephens, Political power and renewable energy futures: A critical review, *Energy Res. Social Sci.* 35 (2018) 78–93, <https://doi.org/10.1016/j.erss.2017.10.018>.
- [81] W.K. Carroll, Fossil capitalism, climate capitalism, energy democracy: the struggle for hegemony in an era of climate crisis, *SS/ES* 14 (1) (2020).
- [82] M.C. Brisbois, Decentralised energy, decentralised accountability? Lessons on how to govern decentralised electricity transitions from multi-level natural resource governance, *Global Transitions* 2 (2020) 16–25, <https://doi.org/10.1016/j.glt.2020.01.001>.
- [83] D. Brown, S. Hall, M.E. Davis, What is prosumerism for? Exploring the normative dimensions of decentralised energy transitions, *Energy Res. Social Sci.* 66 (2020) 101475, <https://doi.org/10.1016/j.erss.2020.101475>.
- [84] L.T. Clausen, D. Rudolph, Renewable energy for sustainable rural development: Synergies and mismatches, *Energy Policy* 138 (2020) 111289, <https://doi.org/10.1016/j.enpol.2020.111289>.
- [85] P. Connor, O. Fitch-Roy, The Socio-Economic Challenges of Smart Grids, in: A. Taşıkaraoğlu, O. Erdinç (Eds.), *Pathways to a smarter power system*, Academic Press, London, 2019, pp. 397–413.
- [86] A. Chatterjee, A. Brent, R. Rayudu, P. Verma, Microgrids for rural schools: An energy-education accord to curb societal challenges for sustainable rural developments, *IJRED* (2019;8(3):231).
- [87] W. Ajaz, Resilience, environmental concern, or energy democracy? A panel data analysis of microgrid adoption in the United States, *Energy Res. Social Sci.* 49 (2019) 26–35, <https://doi.org/10.1016/j.erss.2018.10.027>.
- [88] M.C. Brisbois, Powershifts: A framework for assessing the growing impact of decentralized ownership of energy transitions on political decision-making, *Energy Res. Social Sci.* 50 (2019) 151–161, <https://doi.org/10.1016/j.erss.2018.12.003>.
- [89] B.G. Baigorrotegui, Destabilization of Energy Regimes and Liminal Transition through Collective Action in Chile, *Energy Res. Social Sci.* 55 (2019) 198–207, <https://doi.org/10.1016/j.erss.2019.05.018>.
- [90] M. de Bakker, A. Lagendijk, M. Wiering, Cooperatives, incumbency, or market hybridity: New alliances in the Dutch energy provision, *Energy Res. Social Sci.* 61 (2020) 101345, <https://doi.org/10.1016/j.erss.2019.101345>.
- [91] E. Allen, H. Lyons, J.C. Stephens, Women's leadership in renewable transformation, energy justice and energy democracy: Redistributing power, *Energy Res. Social Sci.* 57 (2019) 101233, <https://doi.org/10.1016/j.erss.2019.101233>.
- [92] N.I. Avila, D.M. Kammen, The Role of Renewable Energy in Bridging the Electricity Gap in Africa, *Curr Sustainable Renewable Energy Rep* 5 (4) (2018) 205–213, <https://doi.org/10.1007/s40518-018-0117-5>.
- [93] Y.I. Bogomolova, E.V. Belokurova, V.R. Meshkov, E.O. Pavlov, Human Capital of Transnational Corporations in the Energy Sector, *IJEEP* 8 (6) (2018).
- [94] G. Bridge, S. Barca, B. Özkaynak, E. Turhan, R. Wyeth, Towards a Political Ecology of EU Energy Policy, in: C. Foulds, R. Robison (Eds.), *Advancing energy policy: Lessons on the integration of social sciences and humanities*, Palgrave Macmillan, Basingstoke, Hampshire, 2018, pp. 163–175.
- [95] E. Baldwin, From Regulation to Governance in the Electric Sector, *Curr Sustainable Renewable Energy Rep* 5 (1) (2018) 86–92, <https://doi.org/10.1007/s40518-018-0102-z>.
- [96] H. Bartling, Choosing Community Choice Aggregation: The Experience of Illinois Municipalities in the Electricity Market, *Illinois Municipal Policy Journal* 3 (1) (2018) 49–66.
- [97] S. Copland, Anti-politics and Global Climate Inaction: The Case of the Australian Carbon Tax, *Crit. Sociol.*, 2019;20(2):089692051987023. Doi: 10.1177/0896920519870230.
- [98] D.J. Hess, Cooler coalitions for a warmer planet: A review of political strategies for accelerating energy transitions, *Energy Res. Social Sci.* 57 (2019) 101246, <https://doi.org/10.1016/j.erss.2019.101246>.
- [99] D.J. Hess, D. Lee, Energy decentralization in California and New York: Conflicts in the politics of shared solar and community choice, *Renew. Sustain. Energy Rev.* 121 (2020) 109716, <https://doi.org/10.1016/j.rser.2020.109716>.
- [100] L. Herencić, P. Ilak, I. Rajšl, Effects of Local Electricity Trading on Power Flows and Voltage Levels for Different Elasticities and Prices, *Energies* 12 (24) (2019) 4708, <https://doi.org/10.3390/en12244708>.
- [101] D.J. Hess, Coalitions, framing, and the politics of energy transitions: Local democracy and community choice in California, *Energy Res. Social Sci.* 50 (2019) 38–50, <https://doi.org/10.1016/j.erss.2018.11.013>.
- [102] C. Inês, P.L. Guilherme, M.-G. Esther, G. Swantje, H. Stephen, H. Lars, Regulatory challenges and opportunities for collective renewable energy prosumers in the EU, *Energy Policy* 138 (2020) 111212, <https://doi.org/10.1016/j.enpol.2019.111212>.
- [103] K. Ingold, I. Stadelmann-Steffen, L. Kammermann, The acceptance of instruments in instrument mix situations: Citizens' perspective on Swiss energy transition, *Res. Policy* 48 (10) (2019) 103694, <https://doi.org/10.1016/j.respol.2018.10.018>.
- [104] C.E. Hoicka, J.L. MacArthur, From tip to toes: Mapping community energy models in Canada and New Zealand, *Energy Policy* 121 (2018) 162–174, <https://doi.org/10.1016/j.enpol.2018.06.002>.
- [105] R. Hourcade, S.L. van Neste, Où mènent les transitions ? Lien social et Politiques 82 (2019) 4, <https://doi.org/10.7202/1061874ar>.
- [106] N. Healy, J.C. Stephens, S.A. Malin, Embodied energy injustices: Unveiling and politicizing the transboundary harms of fossil fuel extractivism and fossil fuel supply chains, *Energy Res. Social Sci.* 48 (2019) 219–234, <https://doi.org/10.1016/j.erss.2018.09.016>.
- [107] S. Funcke, C. Ruppert-Winkel, Storylines of (de)centralisation: Exploring infrastructure dimensions in the German electricity system, *Renew. Sustain. Energy Rev.* 121 (2020) 109652, <https://doi.org/10.1016/j.rser.2019.109652>.
- [108] J. Fitzgerald, *Greenovation: Urban leadership on climate change*, Oxford University Press, New York, NY, 2020.
- [109] L. Edling, C. Danks, To adopt or not to adopt? Insights on energy transitions from a study of advanced wood heating, *Energy Res. Social Sci.* 45 (2018) 331–339, <https://doi.org/10.1016/j.erss.2018.06.019>.
- [110] L.L. Delina, *Emancipatory Climate Actions: Strategies from histories*, Springer International Publishing, Cham, 2019.
- [111] P.S. Fox-Penner, *Power after carbon: Building a clean, resilient grid*, Harvard University Press, Cambridge, Massachusetts, 2020.
- [112] L. Kammermann, C. Dermont, How beliefs of the political elite and citizens on climate change influence support for Swiss energy transition policy, *Energy Res. Social Sci.* 43 (2018) 48–60, <https://doi.org/10.1016/j.erss.2018.05.010>.
- [113] K. Szulecki, Securitization and state encroachment on the energy sector: Politics of exception in Poland's energy governance, *Energy Policy* 136 (2020) 111066, <https://doi.org/10.1016/j.enpol.2019.111066>.
- [114] P. Mihók, Understanding political institutional support for completing the Mochovce nuclear power plant, *Prog. Nucl. Energy* 120 (2020) 103192, <https://doi.org/10.1016/j.pnucene.2019.103192>.
- [115] J. Knoefel, J. Sagebiel, Ö. Yildiz, J.R. Müller, J. Rommel, A consumer perspective on corporate governance in the energy transition: Evidence from a Discrete Choice Experiment in Germany, *Energy Econ.* 75 (2018) 440–448, <https://doi.org/10.1016/j.eneco.2018.08.025>.
- [116] J. Hultgren, D. Stevis, Interrogating socio-ecological coalitions: environmentalist engagements with labor and immigrants' rights in the United States, *Environmental Politics* 66 (2) (2019) 1–22, <https://doi.org/10.1080/09644016.2019.1647752>.
- [117] A. Herranz-Surrallés, I. Solorio, J. Fairbrass, Renegotiating authority in the Energy Union: A Framework for Analysis, *Journal of European Integration* 42 (1) (2020) 1–17, <https://doi.org/10.1080/07036337.2019.1708343>.
- [118] M.A. Heldeweg, S. Saintier, Renewable energy communities as 'socio-legal institutions': A normative frame for energy decentralization? *Renew. Sustain. Energy Rev.* 119 (2020) 109518, <https://doi.org/10.1016/j.rser.2019.109518>.
- [119] B. Horváthová, M. Dobbins, Organised Interests in the Energy Sector: A Comparative Study of the Influence of Interest Groups in Czechia and Hungary, *PaG* (2019;7(1):139).
- [120] J. Szulecka, Towards Sustainable Wood-Based Energy: Evaluation and Strategies for Mainstreaming Sustainability in the Sector, *Sustainability* 11 (2) (2019) 493, <https://doi.org/10.3390/su11020493>.
- [121] G. Mullally, N. Dunphy, P. O'Connor, Participative environmental policy integration in the Irish energy sector, *Environ. Sci. Policy* 83 (2018) 71–78, <https://doi.org/10.1016/j.envsci.2018.02.007>.
- [122] S. Sargsyan, Y. Aydin, Meet the New Normal: Community-Driven Clean Energy Partnership and Regional Cooperation Between Turkey and Armenia, *Journal of Conflict Transformation - Caucasus Edition* (2019(June)).
- [123] S. Sareen (Ed.), *Enabling sustainable energy transitions: Practices of legitimization and accountable governance*, Palgrave Macmillan, Cham, 2020.
- [124] A. Silvast, R. Bolton, V. Lagendijk, K. Szulecki, Crossing Borders: Social Sciences and Humanities Perspectives on European Energy Systems Integration, in: C. Foulds, R. Robison (Eds.), *Advancing Energy Policy: Lessons on the integration of Social Sciences and Humanities*, Springer International Publishing, Cham, 2018, pp. 97–110.
- [125] V. Selk, J. Kemmerzell, J. Radtke, In der Demokratiefrage? Probleme der Energiewende zwischen Expertokratie, partizipativer Governance und populistischer Reaktion, in: J. Radtke, W. Canzler, M.A. Schreurs, S. Würster (Eds.), *Energiewende in Zeiten des Populismus*, Springer Fachmedien Wiesbaden, Wiesbaden, 2019, pp. 31–66.
- [126] A. Revez, N. Dunphy, C. Harris, G. Mullally, B. Lennon, C. Gaffney, Beyond Forecasting: Using a Modified Delphi Method to Build Upon Participatory Action Research in Developing Principles for a Just and Inclusive Energy Transition, *Int. J. Qual. Methods*, 2020, 19, 160940692090321. Doi: 10.1177/

- 1609406920903218.
- [127] K. O'Sullivan, O. Golubchikov, A. Mehmood, Uneven energy transitions: Understanding continued energy peripheralization in rural communities, *Energy Policy* 138 (2020) 111288, <https://doi.org/10.1016/j.enpol.2020.111288>.
 - [128] J. Nicholls, Technological intrusion and communicative renewal: The case of two rural solar farm developments in the UK, *Energy Policy* 139 (2020) 111287, <https://doi.org/10.1016/j.enpol.2020.111287>.
 - [129] J. Pickering, K. Bäckstrand, D. Schlosberg, Between environmental and ecological democracy: theory and practice at the democracy-environment nexus, *J. Environ. Plann. Policy Manage.* 22 (1) (2020) 1–15, <https://doi.org/10.1080/1523908X.2020.1703276>.
 - [130] L. Pellizzoni, *Energia di comunità: Una ricognizione critica della letteratura*, in: G. Osti, L. Pellizzoni (Eds.), *Energia e innovazione tra flussi globali e circuiti locali*, EUT, Trieste, 2018, pp. 17–41.
 - [131] M. David, Die deutsche Dekarbonisierungsbewegung: Bottom-up-Exnovation zwischen Post-Politik und Partizipation? in: J. Radtke, W. Canzler, M.A. Schreurs, S. Wurster (Eds.), *Energiewende in Zeiten des Populismus*, Springer Fachmedien Wiesbaden, Wiesbaden, 2019, pp. 423–442.
 - [132] M. David, S. Schönborn, Bottom-Up Energy Transition Narratives: Linking the Global with the Local? A Comparison of Three German Renewable Co-Ops, *Sustainability* 10 (4) (2018) 924, <https://doi.org/10.3390/su10040924>.
 - [133] A. Vainio, A. Pulkka, R. Paloniemi, V. Varho, P. Tapio, Citizens' sustainable, future-oriented energy behaviours in energy transition, *J. Cleaner Prod.* 245 (2020) 118801, <https://doi.org/10.1016/j.jclepro.2019.118801>.
 - [134] G. Curran, Is renewable energy still green? Shaping Australia's renewable energy enterprise in an age of ecological modernisation, *Environmental Politics* 28 (5) (2019) 950–969, <https://doi.org/10.1080/09644016.2018.1510215>.
 - [135] R.J. Hewitt, N. Bradley, A. Baggio Compagnucci, C. Barlagne, A. Ceglaz, R. Cremades, et al., Social Innovation in Community Energy in Europe: A Review of the Evidence, *Front. Energy Res.* 7 (2019) 1834, <https://doi.org/10.3389/fenrg.2019.00031>.
 - [136] G. Cheung, P.J. Davies, A. Bassen, In the transition of energy systems: What lessons can be learnt from the German achievement? *Energy Policy* 132 (2019) 633–646, <https://doi.org/10.1016/j.enpol.2019.05.056>.
 - [137] H. van Soest, Peer-to-peer electricity trading: A review of the legal context, *Competition and Regulation in Network Industries* 19 (3–4) (2018) 180–199, <https://doi.org/10.1177/1783591719834902>.
 - [138] C. Dermont, Environmental decision-making: the influence of policy information, *Environmental Politics* 28 (3) (2019) 544–567, <https://doi.org/10.1080/09644016.2018.1480258>.
 - [139] M.A. Heldeweg, I. Lammers, An empirico-legal analytical & design model for local smart energy systems: Applying the 'ILTAD' model, combining the IAD-Framework with Institutional Legal Theory, *Int J Commons* (2019;13(1):479).
 - [140] O. Golubchikov, K. O'Sullivan, Energy periphery: Uneven development and the precarious geographies of low-carbon transition, *Energy Build.* 211 (2020) 109818, <https://doi.org/10.1016/j.enbuild.2020.109818>.
 - [141] G. Frigo, The Energy Ethic and Strong Sustainability: Outlining Key Principles for a Moral Compass, in: K.J. Bonnedahl, P. Heikkurinen (Eds.), *Strongly sustainable societies: Organising human activities on a hot and full earth*, Routledge, London, New York, NY, 2019, pp. 77–95.
 - [142] K. Szulecki, D.H. Claes, Towards Decarbonization: Understanding EU Energy Governance, *PaG* (2019;7(1):1).
 - [143] I.D. Dokk Smith, Energy Transition and Social Movements: The Rise of a Community Choice Movement in California, in: D. Kurochkin, E.V. Shablyi, E. Shittu (Eds.), *Renewable Energy: International Perspectives on Sustainability*, Palgrave, London, 2019, pp. 91–129.
 - [144] S. Mookerjee, Renewable energy transition under multiple colonialisms: passive revolution, fascism redux and utopian praxes, *Cultural Studies* 33 (3) (2019) 570–593, <https://doi.org/10.1080/09502386.2019.1585464>.
 - [145] C. Martinez, From commodification to the commons: Charting the pathway for energy democracy, in: D. Fairchild, A. Weinrub (Eds.), *Energy Democracy: Advancing Equity in Clean Energy Solutions*, Island Press, Washington, D. C., 2017.
 - [146] M. Lennon, Decolonizing energy: Black Lives Matter and technoscientific expertise amid solar transitions, *Energy Res. Social Sci.* 30 (2017) 18–27, <https://doi.org/10.1016/j.erss.2017.06.002>.
 - [147] U. Pesch, Elusive publics in energy projects: The politics of localness and energy democracy, *Energy Res. Social Sci.* 56 (2019) 101225, <https://doi.org/10.1016/j.erss.2019.101225>.
 - [148] Martin L. Murillo, La necesidad de cambio en el sistema energético Español, *Revista de Obras Públicas* 3584 (2017) 26–31.
 - [149] C. Morris, A. Jungjohann, *Energy Democracy: Germany's Energiewende to Renewables*, Palgrave Macmillan, Houndmills Basingstoke Hampshire, 2016.
 - [150] D.A. Katsaprakakis, M. Voumvoulakis, A hybrid power plant towards 100% energy autonomy for the island of Sifnos, Greece, Perspectives created from energy co-operatives, *Energy* 161 (2018) 680–698, <https://doi.org/10.1016/j.energy.2018.07.198>.
 - [151] A. García-Olivares, Substituting silver in solar photovoltaics is feasible and allows for decentralization in smart regional grids, *Environmental Innovation and Societal Transitions* 17 (2015) 15–21, <https://doi.org/10.1016/j.eist.2015.05.004>.
 - [152] D. Fairchild, A. Weinrub (Eds.), *Energy Democracy: Advancing Equity in Clean Energy Solutions*, Island Press, Washington, D. C., 2017.
 - [153] D. Fairchild, A. Weinrub, *Energy Democracy*, in: D. Lerch (Ed.), *The Community Resilience Reader*, Island Press/Center for Resource Economics, Washington, DC, 2017, pp. 195–206.
 - [154] D. LA Johnson, Organizing for energy democracy in rural electric cooperatives, in: D. Fairchild, A. Weinrub (Eds.), *Energy Democracy: Advancing Equity in Clean Energy Solutions*, Island Press, Washington, D. C., 2017.
 - [155] A. Zainudin, A.A. Yunant, Proceedings, IES 2019: IES, International Electronics Symposium Surabaya, Indonesia, September 27–28, 2019 the Role of Techno-intelligence in Creating an Open Energy System Towards Energy Democracy. IEEE; 2019.
 - [156] R. Gunderson, D. Stuart, B. Petersen, S.-J. Yun, Social conditions to better realize the environmental gains of alternative energy: Degrowth and collective ownership, *Futures* 99 (2018) 36–44, <https://doi.org/10.1016/j.futures.2018.03.016>.
 - [157] T.E. Vachon, S. Sweeney, Energy democracy: A just transition for social, economic, and climate justice, in: G.W. Muschert, K.M. Budd, M. Christian, B.V. Klocke, J. Shefner, R. Perrucci (Eds.), *Global agenda for social justice*, Policy Press, Bristol, UK, Chicago, IL, 2018.
 - [158] B. Tokar, Democracy, Localism, and The Future of The Climate Movement, *World Futures* 71 (3–4) (2015) 65–75, <https://doi.org/10.1080/02604027.2015.1092785>.
 - [159] M. Tishman, Community-anchor strategies for energy democracy, in: D. Fairchild, A. Weinrub (Eds.), *Energy Democracy: Advancing Equity in Clean Energy Solutions*, Island Press, Washington, D. C., 2017.
 - [160] Huang V. Yi, M. Yoshitani, Base-building and leadership development for energy democracy: APEN's work in east bay asian immigrant and refugee communities, in: D. Fairchild, A. Weinrub (Eds.), *Energy Democracy: Advancing Equity in Clean Energy Solutions*, Island Press, Washington, D. C., 2017.
 - [161] Worldwatch Institute (Ed.), *State of the World 2014*, Island Press/Center for Resource Economics, Washington, DC, 2014.
 - [162] B. van Veen, Negotiating energy democracy in practice: governance processes in community energy projects, *Environmental Politics* 27 (4) (2018) 644–665, <https://doi.org/10.1080/09644016.2018.1427824>.
 - [163] S. Sweeney, Conflicting agendas: Energy democracy and the labor movement, in: D. Fairchild, A. Weinrub (Eds.), *Energy Democracy: Advancing Equity in Clean Energy Solutions*, Island Press, Washington, D. C., 2017.
 - [164] B.K. Sovacool, Seven suppositions about energy security in the United States, *J. Cleaner Prod.* 19 (11) (2011) 1147–1157, <https://doi.org/10.1016/j.jclepro.2011.03.014>.
 - [165] R. Simmons, K. Dawson, K. Dawn Harris, Green Energy Democracy—A Venue for Zealots and Professionals. In: Reilly S, Yonk R, editors. *Direct Democracy in the United States*. Routledge, 2012.
 - [166] E.D. Rasch, M. Köhne, Energy practices and the construction of energy democracy in the noordoostpolder the Netherlands, in: A. Szolucha (Ed.), *Energy, Resource Extraction and Society: Impacts and Contested Futures*, Routledge, Milton, 2018.
 - [167] S. Sweeney, Working Toward Energy Democracy, in: Worldwatch Institute (Ed.), *State of the World 2014*, Island Press/Center for Resource Economics, Washington, DC, 2014, pp. 215–227.
 - [168] E. Stein, Energy democracy: power to the people? An introduction, in: R. Salter, C.G. Gonzalez, E.A.K. Warner (Eds.), *Energy justice: US and international perspectives*, Edward Elgar Publishing, Cheltenham, Northampton, MA, 2018, pp. 258–274.
 - [169] B.K. Sovacool, P.L. Blyth, Energy and environmental attitudes in the green state of Denmark: Implications for energy democracy, low carbon transitions, and energy literacy, *Environ. Sci. Policy* 54 (2015) 304–315, <https://doi.org/10.1016/j.envsci.2015.07.011>.
 - [170] L. Benander, D. Horowitz, I. Baker, New economy energy cooperatives bring power to the people, in: D. Fairchild, A. Weinrub (Eds.), *Energy Democracy: Advancing Equity in Clean Energy Solutions*, Island Press, Washington, D. C., 2017.
 - [171] O. Akizu-Gardoki, G. Bueno, T. Wiedmann, J.M. Lopez-Guede, I. Arto, P. Hernandez, et al., Decoupling between human development and energy consumption within footprint accounts, *J. Cleaner Prod.* 202 (2018) 1145–1157, <https://doi.org/10.1016/j.jclepro.2018.08.235>.
 - [172] D. Bauknecht, S. Funcke, M. Vogel, Is small beautiful? A framework for assessing decentralised electricity systems, *Renew. Sustain. Energy Rev.* 118 (2020) 109543, <https://doi.org/10.1016/j.rser.2019.109543>.
 - [173] B. Carroll, Canada's Carbon-Capital Elite: A Tangled Web of Corporate Power, *Can. J. Soc.* 42 (3) (2017) 225–260 <https://doi.org/10.29173/cjs28258>.
 - [174] M.J. Burke, Energy democracy and the co-production of social and technological systems in northeastern North America, in: A. Szolucha (Ed.), *Energy, Resource Extraction and Society: Impacts and Contested Futures*, Routledge, Milton, 2018.
 - [175] O. Akizu, L. Urkidi, G. Bueno, R. Lago, I. Barcena, M. Mantxo, et al., Tracing the emerging energy transitions in the Global North and the Global South, *Int. J. Hydrogen Energy* 42 (28) (2017) 18045–18063, <https://doi.org/10.1016/j.ijhydene.2017.04.297>.
 - [176] C. Alarcón Ferrari, C. Chartier, Degrowth, energy democracy, technology and social-ecological relations: Discussing a localised energy system in Vaxjö, Sweden. *Journal of Cleaner Production* 197 (2018) 1754–1765, <https://doi.org/10.1016/j.jclepro.2017.05.100>.
 - [177] A. Antal, The impact of U.S.A. and E.U. on environmental and energy democracy in Hungary. *On-line Journal Modelling the New, Europe* 17 (2015) 13–27.
 - [178] J. Angel, Towards an Energy Politics In-Against-and-Beyond the State: Berlin's Struggle for Energy Democracy, *Antipode* 49 (3) (2017) 557–576, <https://doi.org/10.1111/anti.12289>.
 - [179] S.H. Baker, Mexican Energy Reform, Climate Change, and Energy Justice in Indigenous Communities, *Nat. Resour. J.* 56 (2) (2016) 369–390.
 - [180] C. Aunphattanasilp, Civil society coalitions, power relations, and socio-political ideas: Discourse creation and redesigning energy policies and actor networks in Thailand, *Energy Res. Social Sci.* 58 (2019) 101271, <https://doi.org/10.1016/j.erss.2019.101271>.
 - [181] M. Antal, K. Karhuna, The German energy transition in the British, Finnish and

- Hungarian news media, *Nat Energy* 3 (11) (2018) 994–1001, <https://doi.org/10.1038/s41560-018-0248-3>.
- [182] G. Chalkiadakis, C. Akasiadis, N. Savvakis, T. Tsoutsos, T. Hoppe, F. Coenen, Providing a Scientific Arm to Renewable Energy Cooperatives, in: S. Nižetić, A. Papadopoulos (Eds.), *The Role of Exergy in Energy and the Environment*, Springer International Publishing, Cham, 2018, pp. 717–731.
- [183] T.N. Johnson, The Dakota Access Pipeline and the Breakdown of Participatory Processes in Environmental Decision-Making, *Environmental Communication* 13 (3) (2019) 335–352, <https://doi.org/10.1080/17524032.2019.1569544>.
- [184] B. Cozen, D. Endres, T.R. Peterson, C. Horton, J.T. Barnett, Energy Communication: Theory and Praxis Towards a Sustainable Energy Future, *Environmental Communication* 12 (3) (2018) 289–294, <https://doi.org/10.1080/17524032.2017.1398176>.
- [185] O. Akizu, G. Bueno, I. Barcena, E. Kurt, N. Topaloğlu, J. Lopez-Guede, Contributions of Bottom-Up Energy Transitions in Germany: A Case Study Analysis, *Energies* 11 (4) (2018) 849, <https://doi.org/10.3390/en11040849>.
- [186] D. Fairchild, Conclusion: Building an energy democracy movement, in: D. Fairchild, A. Weinrub (Eds.), *Energy Democracy: Advancing Equity in Clean Energy Solutions*, Island Press, Washington, D. C, 2017.
- [187] S.G.A. Cervas, Energy democracy through local energy equity, in: D. Fairchild, A. Weinrub (Eds.), *Energy Democracy: Advancing Equity in Clean Energy Solutions*, Island Press, Washington, D. C, 2017.
- [188] L.L. Delina, Can Energy Democracy Thrive in a Non-democracy? *Front. Environ. Sci.* 6 (2018) 117, <https://doi.org/10.3389/fenvs.2018.00005>.
- [189] L.L. Delina, Energy democracy in a continuum: Remaking public engagement on energy transitions in Thailand, *Energy Res. Social Sci.* 42 (2018) 53–60, <https://doi.org/10.1016/j.erss.2018.03.008>.
- [190] J. Hicks, N. Ison, An exploration of the boundaries of ‘community’ in community renewable energy projects: Navigating between motivations and context, *Energy Policy* 113 (2018) 523–534, <https://doi.org/10.1016/j.enpol.2017.10.031>.
- [191] K. Jenkins, D. McCauley, R. Heffron, H. Stephan, R. Rehner, Energy justice: A conceptual review, *Energy Res. Social Sci.* 11 (2016) 174–182, <https://doi.org/10.1016/j.erss.2015.10.004>.
- [192] B.K. Sovacool, M.H. Dworkin, Energy justice: Conceptual insights and practical applications, *Appl. Energy* 142 (2015) 435–444, <https://doi.org/10.1016/j.apenergy.2015.01.002>.
- [193] B.K. Sovacool, R.V. Sidortsov, B.R. Jones, *Energy security, equality and justice*, Routledge, 2014.
- [194] P. Wokuri, Participation citoyenne et régimes de politiques publiques nouvelle donne ou donne inchangée ? *Lien social et Politiques* 82 (2019) 158, <https://doi.org/10.7202/1061881ar>.
- [195] C. Jones, D. Reinecke, *Infrastructure and Democracy*, Issues in Science and Technology (2017); XXXIII(2):24–30.
- [196] S. Milder, *Greening democracy: The anti-nuclear movement and political environmentalism in West Germany and beyond, 1968–1983*, Cambridge University Press, Cambridge, 2017.
- [197] A. Cherp, V. Vinichenko, J. Jewell, E. Brutschin, B. Sovacool, Integrating techno-economic, socio-technical and political perspectives on national energy transitions: A meta-theoretical framework, *Energy Res. Social Sci.* 37 (2018) 175–190, <https://doi.org/10.1016/j.erss.2017.09.015>.
- [198] T. Mitchell, *Carbon democracy: Political power in the age of oil*, Verso, London, New York, 2011.
- [199] Y. Yevdokimov, O. Chygryn, T. Pimonenko, O. Lyulyov, Biogas as an alternative energy resource for Ukrainian companies: EU experience, *Innovative Marketing* 14 (2) (2018) 7–15, [https://doi.org/10.21511/im.14\(2\).2018.01](https://doi.org/10.21511/im.14(2).2018.01).
- [200] M. Ratinen, P.D. Lund, *Democracy and Transitions: European Experiences of Policy Inclusiveness and Changes in the Electricity Industry*, in: T. van de Graaf, B.K. Sovacool, A. Ghosh, F. Kern, M.T. Klare (Eds.), *The Palgrave Handbook of the International Political Economy of Energy*, Palgrave Macmillan, London, 2016, pp. 341–362.
- [201] D.J. Davidson, E.A. Edou, B. Robinson, Chipping away at democracy: Legislative slippage in Alberta’s energy development zone, *Energy Res. Social Sci.* 46 (2018) 303–310, <https://doi.org/10.1016/j.erss.2018.08.003>.
- [202] J.P. Tomain, The Democratization of Energy, *Vanderbilt Journal of Transnational Law* 48 (2015) 1125–1145.
- [203] J. Cohen, Deliberative Democracy, in: S.W. Rosenberg (Ed.), *Deliberation, participation and democracy: Can the people govern?* Palgrave Macmillan, Basingstoke, 2007, pp. 219–236.
- [204] J. Dryzek, *Deliberative democracy and beyond: Liberals, critics, contestations*, Oxford University Press, Oxford, 2000.
- [205] J. Dryzek, The Theory, Evidence, and the Tasks of Deliberation, in: S.W. Rosenberg (Ed.), *Deliberation, participation and democracy: Can the people govern?* Palgrave Macmillan, Basingstoke, 2007, pp. 237–250.
- [206] Porta D. Della, *Democracy in social movements*, Palgrave Macmillan, Basingstoke, 2009.
- [207] J. Rawls, *A theory of justice*, Oxford University Press, Oxford, 1999.
- [208] R.A. Dahl, *On democracy*, Yale University Press, New Haven, 2015.
- [209] J. Habermas, *Moral consciousness and communicative action*, 7th ed., MIT Press, Cambridge, Mass, 2001.
- [210] A. de Tocqueville, A. Goldhammer, *Democracy in America*. New York: Library of America; Distributed to the trade in the U.S. by Penguin Putnam; 2004.
- [211] D. Boyer, *Energopower: An Introduction*, *Anthropological Quarterly* 87 (2) (2014) 309–333, <https://doi.org/10.1353/anq.2014.0020>.
- [212] P. Rosanvallon, *Democratic legitimacy: Impartiality, reflexivity, proximity*, Princeton University Press, Princeton, 2011.
- [213] C.H. Achen, L.M. Bartels, *Democracy for realists: Why elections do not produce responsive government* /, Princeton University Press, Princeton, 2016.
- [214] E. Sorensen, J. Torfing, The Democratic Anchorage of Governance Networks, *Scand Pol Stud* 28 (3) (2005) 195–218, <https://doi.org/10.1111/j.1467-9477.2005.00129.x>.
- [215] A. Wagner, T. Grobelski, M. Haremski, Is energy policy a public issue? Nuclear power in Poland and implications for energy transitions in Central and East Europe, *Energy Res. Social Sci.* 13 (2016) 158–169, <https://doi.org/10.1016/j.erss.2015.12.010>.
- [216] S. Sweeney, K. Benton-Connell, L. Skinner, *Power to the People, Toward Democratic Control of Electricity Generation* (2015).
- [217] P. Quintanilla, P. Cummins-Tripodi (Eds.), *Revolving doors and the fossil fuel industry: Time to tackle conflicts of interest in climate policy-making*, Greens/EFA, Brussels, 2018.
- [218] A. Heritier, D. Lehmkuhl, The Shadow of Hierarchy and New Modes of Governance, *Journal of Public Policy* 28 (1) (2008) 1–17, <https://doi.org/10.1017/S0143814X08000755>.
- [219] F. Proedrou, A public policy approach to climate policy: the case for a de-centralized model of energy transition in the residential sector, Helsinki (2018).
- [220] C. Gauthier, Lowitzsch J. Outlook, *Energy Transition and Regulatory Framework 2.0: Insights from the European Union*, in: J. Lowitzsch (Ed.), *Energy Transition: Financing Consumer Co-Ownership in Renewables*, Springer International Publishing, Cham, 2019, pp. 733–765.
- [221] K. Szulecki, S. Fischer, A.T. Gullberg, O. Sartor, Shaping the ‘Energy Union’: between national positions and governance innovation in EU energy and climate policy, *Climate Policy* (2016) 1–20, <https://doi.org/10.1080/14693062.2015.1135100>.
- [222] Weinrub A. Democratizing, *Municipal-Scale Power, Energy Democracy: Advancing Equity in Clean Energy Solutions*, Island Press, Washington, D. C, 2017, pp. 139–171.
- [223] P. Burnell, Democracy, democratization and climate change: complex relationships, *Democratization* 19 (5) (2012) 813–842, <https://doi.org/10.1080/13510347.2012.709684>.
- [224] M. Povitkina, The limits of democracy in tackling climate change, *Environmental Politics* 27 (3) (2018) 411–432, <https://doi.org/10.1080/09644016.2018.1444723>.
- [225] S. Četković, C. Hagemann, Changing climate for populists? Examining the influence of radical-right political parties on low-carbon energy transitions in Western Europe, *Energy Res. Social Sci.* 66 (2020) 101571, <https://doi.org/10.1016/j.erss.2020.101571>.
- [226] P. Zuk, K. Szulecki, Unpacking the right-populist threat to climate action: Poland’s pro-governmental media on energy transition and climate change, *Energy Res. Social Sci.* 66 (2020) 101485, <https://doi.org/10.1016/j.erss.2020.101485>.
- [227] M. Lockwood, Right-wing populism and the climate change agenda: Exploring the linkages, *Environmental Politics* 27 (4) (2018) 712–732, <https://doi.org/10.1080/09644016.2018.1458411>.
- [228] D. Acemoglu, G. Egorov, K. Sonin, *A Political Theory of Populism* (2011).
- [229] R.L. Madrid, The Rise of Ethnopolitics in Latin America, *World Pol.* 60 (3) (2008) 475–508, <https://doi.org/10.1017/S0043887100009060>.
- [230] C. Mudde, The Populist Zeitgeist, *Gov. & oppos.* 39 (4) (2004) 541–563, <https://doi.org/10.1111/j.1477-7053.2004.00135.x>.
- [231] I. Overland, EU Climate and Energy Policy: New Challenges for Old Energy Suppliers, in: J.M. Godzimirski (Ed.), *New Political Economy of Energy in Europe*, Springer International Publishing, Cham, 2019, pp. 73–102.
- [232] V. Selk, J. Kemmerzell, *Democracy Problems of Energy Transition: Technocracy, Participatory Governance, and Populist Response*, *Political Studies* (2020).
- [233] E.L. Boasson, B. Lahn, Norway: A Dissonant Cognitive Leader? in: R. Wurzel, J. Connolly, D. Lieferink (Eds.), *The European Union in international climate change politics: Still taking a lead?* Routledge, London, New York, NY, 2017, pp. 189–203.
- [234] I. Ruostetsaari, Stealth democracy, elitism, and citizenship in Finnish energy policy, *Energy Res. Social Sci.* 34 (2017) 93–103, <https://doi.org/10.1016/j.erss.2017.06.022>.
- [235] G. Bridge, Energy (in)security: world-making in an age of scarcity, *The Geographical Journal* 181 (4) (2015) 328–339, <https://doi.org/10.1111/geoj.12114>.