

1 What is Energy Democracy?

2 Connecting social science energy

3 research and political theory.

4

5 Abstract

6 In recent years the term 'energy democracy' has become increasingly popular,
7 especially in the context of aspirations for a low-carbon transition that include
8 wider socio-economic and political transformation. The emergence of 'energy
9 democracy' is thus part of a broader trend in research and practice which has
10 sought to foreground the 'stuff' of politics. Yet, unlike the more academically
11 developed concepts of energy justice and energy citizenship, energy democracy is a
12 concept that emerged largely from social movements. This has resulted in a body of
13 literature with little connection to established academic debates and theories. The
14 growing popularity of the concept calls for a critical evaluation of the term and how
15 it is used. By reviewing existing energy democracy publications and bringing these
16 in conversations with more theoretical literature, we are seeking to address five
17 questions; what is the nature of democracy in energy democracy, the proposed
18 material focus for energy democracy, the rationale for pursuing energy democracy,
19 the people and stakeholders involved and excluded, and the geographical focus for
20 energy democracy. In the subsequent discussion we draw connections between
21 energy democracy, the growing body of social science energy research and political
22 theory, and identify avenues for further research.
23

24 Key words

25 Energy, transition, materiality, community, associative democracy, politics

26 1. Introduction

27 The term 'energy democracy' (ED) has gained significant popularity in recent years.
28 The trouble is, when applied, 'democracy' often becomes a slippery term (Smith and
29 Stirling 2016). It is evident from the energy democracy literature that use of the
30 term is often vague and uncritical (McHarg 2016). The aim of this review paper is
31 therefore to analyse the ED literature to date, and connect this with key conceptual
32 debates in political theory in order to contribute to development of a critical,
33 conceptual understanding of how this term is understood and mobilised; is it mainly
34 a tool for political change or does it represent a particular, coherent vision of future
35 society? What kind of restructuring of current energy systems does it imply? And
36 what form(s) of democracy does it promote? Deeper academic engagement with
37 energy democracy as a movement and a concept is important to understand not
38 only how the passing of the fossil fuel era can open up the possibility of a more

39 democratic future (Mitchell 2009), but also to better understand what *type* of
40 democratic future is being sought.

41
42 In relation to existing research, we identify three areas with a scope for further
43 development. Academics have started to take up the term energy democracy, but
44 there is an identified need to consider its use in practice in more critical detail (see
45 also Szulecki 2018). Secondly, the seemingly adjacent concepts of ‘energy
46 citizenship’ (Devine-Wright 2007) and ‘energy justice’ (Sovacool and Dworkin 2015,
47 Jenkins *et al.* 2016, 2017) are now the focus of extensive academic enquiry. There is
48 thus a need to examine if ED merits similar attention as a stand-alone concept, and
49 how it relates to (the literature on) energy citizenship and energy justice. And finally
50 there is the need to engage with political theory literature as well as comparing
51 notes with other ‘adjective democracy’ (Collier and Levitsky 1997) debates related
52 to resources and technologies, such as environmental democracy (Mason 1999),
53 innovation democracy (Stirling 2015, Smith and Stirling 2016), water democracy
54 (Shiva 2006, Bakker 2008) and food democracy (Levkoe 2006, Hassanein 2008,
55 Johnston *et al.* 2009) in order to understand the type(s) of democracy that the
56 energy democracy literature alludes to.

57
58 The paper is structured as follows. First, we chart the origin of the term energy
59 democracy and provide an overview of the academic and grey literature published
60 to date. Subsequent sections of the paper analyse the literature through the
61 following four questions; Why is ED promoted? Who is (supposed to be) involved in
62 ED? What is the material (and energy) focus of ED? And finally; where is ED
63 pursued? These findings are then brought into conversation with extant literature
64 on the various forms and aspects of democracy, enabling us to synthesise what type
65 of democracy tends to be implied by ED. Finally, we draw the findings together in a
66 discussion about the academic questions surrounding energy democracy as a
67 concept and as a social movement, and establish an agenda for further research.
68

69 2. The Energy Democracy literature

70 A search for the term ‘energy democracy’¹ on Google Scholar and Scopus yielded no
71 mentions from pre-2010, while a wider Google search only yielded a small number
72 of mentions (e.g. Kassulke 2003, Muttitt, 2006). Table 1 lists all publications we
73 found that made more than single reference to ED². Any publications found through
74 this search were read, with references followed up to identify the origin of the
75 concept. While we could not find a unique single origin for the term, it appears that
76 in its early stages ED was primarily used by non-governmental groups and
77 researchers in the US (see Kassulke 2003, Sovacool 2011, Giancatarino 2012,

¹ A limitation of this approach is that by searching for the English term, we have limited ourselves to sources from the English-speaking world, and/or sources that were referenced by English language literature.

² The literature review was completed in July of 2017.

78 Sweeney 2013), before gaining ground in Europe, i.e. the UK, Poland, and especially
79 Germany (Weis *et al.* 2015).

80

81 What was noticeable through this search is that early mentions of energy democracy
82 primarily appeared in the 'grey' literature, e.g. reports or articles published by non-
83 governmental organisations, think tanks and policy groups. This early dominance of
84 grey literature is especially notable as we used academic search engines during our
85 search. While there are mentions of ED in the academic literature prior to 2015, the
86 most substantive contributions were made by organisations outside academia.

87

88 It is only in the most recent years that (peer-reviewed) academic papers have made
89 substantive contributions on this topic. In particular, we wish to acknowledge a
90 number of notable recent contributions that have been published while this paper
91 was under review. In particular, Burke and Stephens (2017) and Van Veelen (2018)
92 both expand the evidence base for how ED is realised in practice, albeit at different
93 'levels' of governance. Whereas Burke and Stephens (2017) show which policy
94 instruments could help to achieve greater energy democracy, Van Veelen (2018)
95 shows the challenges encountered by community and cooperative energy groups in
96 practicing democratic governance within their projects. Recent conceptual reviews
97 by Burke and Stephens (2018) and Szulecki (2018) show that there is a need to
98 strengthen the conceptual foundations of energy democracy democracy. Here, we
99 build on this work by explicitly asking the question 'what kind of democracy is
100 energy democracy?', a question we investigate by analysing energy democracy in
101 the context of three conceptualisations of democracy: associative, deliberative and
102 material.

103

104 *Table 1: Overview of the energy democracy literature reviewed*

105

106 2a. Why energy democracy?

107

108 The energy democracy literature primarily frames ED as a response to the current
109 energy regime experienced in many Western countries (e.g. McHarg 2016, Morris
110 and Jungjohann 2016, Democracja Energetyczna 2017). This is notable as these
111 countries are generally regarded as democratic, and have (near) universal access to
112 energy. As such, the drivers for ED should not be understood in terms of access to
113 energy, but as a response to both the limitations of

114

115 *'public ownership, with its highly attenuated (representative)*
116 *democratic control over arm's-length and centralised public*
117 *corporations, and privatisation, with its illusory promise of individual*
118 *empowerment through shareholder democracy and consumer*
119 *sovereignty. (McHarg 2016, p.314).*

120

121 Beyond this, however, there is a lack of clarity about the aims in the energy
122 democracy literature: is ED the outcome or the process? Is it *'a future utopia to be*
123 *won'* or *'an ongoing series of multiple struggles over who owns and controls energy*
124 *and how, where and for whom energy is produced and consumed'* (Angel 2016b, p.4)?
125 A number of reports on ED appear to ascribe to the first view: in both the US (Farrell
126 2014) and Europe (Vansintjan 2015) energy democracy has been framed as an end-
127 state to move towards, as *'the answer'* (Farrell 2014, p.43). Framed this way, energy
128 democracy represents a blueprint for an ideal world where energy systems are
129 more decentralised and socially controlled (Chavez 2015, Pearl-Martinez and
130 Stephens 2016), access is equitable and benefits dispersed (Farrell 2014), and
131 energy consumption and production harms neither people or environment
132 (Klimacamp Lausitzcamp 2012, Weinrub and Giancattarino 2015).

133
134 These examples show that, while framing energy democracy as an ideal end-state,
135 they combine a procedural and outcome dimension, where decentralised forms of
136 energy governance contribute to more equitable outcomes. This combination of
137 process and outcome is also evident in other literature on resource democracies.
138 For example, Shiva (2006) conceptualises water democracy as a process of both a
139 deepening of democracy and a defense of genuinely democratic structures, in order
140 to achieve a more equitable distribution of resources. Thus, participation in
141 democratic governance of resources is seen as a means of placing power in the
142 hands of ordinary citizens, enabling them to break down entrenched inequalities
143 (also see Walker *et al.* 2015, p.7).

144 Such a framing, however, raises the question what distinguishes ED from energy
145 justice. Theories of democracy and justice have a long history, but have often been
146 approached from different directions: where theories of justice have historically
147 been the remit of philosophers, theories of democracy have been more rooted in
148 political science. Barry's definition of democracy as *'the procedure for capturing the*
149 *views of citizens and translating them into outcomes'* (cited in Dowding, Goodin, &
150 Patemen, 2004, p.5), illustrates that the use of the term democracy often implies a
151 focus on the procedures and mechanisms associated with decision-making. Viewed
152 this way, democracy is primarily considered to play an important instrumental role
153 in discovering and implementing demands for justice (Young 1990, 2000).

154 For some, such as Angel (2016b, p.4), this means a series of struggles, over *'who*
155 *owns and controls energy and how, where and for whom energy is produced and*
156 *consumed'*. Here, for democracy to have any practical progressive meaning it should
157 enable *'access by the least powerful people and communities to the capacities for*
158 *challenging the directions of the innovations that affect them'* (Smith and Stirling
159 2016, p.9). Thinking about democracy this way means it must thus be viewed as a
160 process of reshaping social relations, rather than achieving particular categories of
161 outcomes (Smith and Stirling 2016).

162 For many others, however, achieving just outcomes are a natural outcome of
163 democratic procedures. What shines through in some accounts of ED is the vision
164 that democratic participation is thought to promote solidarity by enabling those
165 who participate to recognise, and act for, the collective good (Walker *et al.* 2015).
166 This notion that participation benefits the collective or public is one that is central
167 to ED. For example for both Cumbers *et al.* (2013) and Angel (2016a) energy
168 democracy is based on having a participatory energy system that works in the
169 public interest, while Powell (2016) argues for the need to restore public purpose.
170 In order to ensure an energy system that provides more equitable outcomes
171 Cumbers *et al.* (2013) have argued that a more co-operative and consensual
172 approach to the development of energy strategies is required.

173
174 However, this presumed relationship between democratic procedures and just
175 outcomes has been contested in the wider justice and democracy literatures (e.g.
176 Young 1990, Dowding *et al.* 2004, Walker *et al.* 2015). In particular, it raises a
177 number of additional questions, such as who can or should participate; what form
178 does/should this participation take; and at what scales? It is to these questions, and
179 how they are addressed in the ED literature, that we turn next, before discussing
180 these findings in light of the wider political philosophy theory in Section 4.

181 2b. Energy Democracy by and for who?

182 A key focus of the ED literature is on the participatory dimensions of democratic
183 governance, with many arguing for a need to reform how decisions around energy
184 are made. For example, Kunze and Becker (2014) argue that *'the greatest number of*
185 *people directly affected by a project should hold as large a power of initiative and*
186 *decision-making as possible'*. What is noticeable from the literature is that there is a
187 strong focus on direct participation, and that it highlights the multiple ways in
188 which people can participate. One example that shows these multiple roles is
189 Vansintjan (2015, p. 61) who argues that energy democracy means that *the*
190 *shareholder is also the user of the service being invested in'* and can participate in
191 democratic decision-making *'according to the one person, one vote principle'*. It thus
192 suggests a vision in which 'the people' are active and involved, as financiers
193 (Carrilho da Graça and Gomes 2016) and as *'producers, distributors, owners, sharers*
194 *and collective users of energy'* (Platform London 2014 in McHarg 2016, p.16; see also
195 Baker 2016, Pearl-Martinez and Stephens 2016).

196
197 Energy democracy casts people as energy citizens, even if only implicitly. Drawing
198 on research from the field of environmental citizenship, Devine-Wright (2007, p.71)
199 sees energy citizens as active participants rather than passive stakeholders in the
200 energy system, *who '... can feel positive and excited about new energy technologies*
201 *rather than apathetic and disinterested [...]'*. This is a citizenship that is to be enacted
202 through active participation rather than a citizenship conferred by a set of legal
203 obligations and entitlements 'from above' (Mohan and Hickey 2004, Biesta 2009).

204

205 While much of the energy democracy literature seems to advocate for an active form
206 of energy citizenship, some academics have offered a more critical perspective. For
207 example, feminist writers have warned against notions of citizenship that can only
208 be fulfilled by subsets of the population (Young 1990, Mohan and Hickey 2004). This
209 is highly relevant to energy, as it has been documented that participation in
210 'desirable' energy activities is influenced by social and economic factors, including
211 gender (Fraune 2015), economic status (Walker 2008, Bauwens and Eyre 2017) and
212 home ownership (Rogers *et al.* 2008). The promotion of an individualised notion of
213 energy citizenship, through for example ownership of domestic renewable energy
214 technologies (e.g. Institute of Solar Power Democracy, undated), risks that the
215 'haves' may more easily disregard the needs of the 'have nots' (Faber and McCarthy
216 2003).

217
218 What sets much of the ED literature apart from the concept of energy citizenship, is
219 its focus on *collective* participation in, and control of, energy resources. It considers
220 '*community organizing*' (Farrell 2014, p.41); '*the possibility for communities to*
221 '*participate in the control of their energy resources*' (Weinrub 2014, p. 5.); and '*the*
222 '*expansion of local initiatives, such as small-scale cooperatives*' (Chavez 2015, para.4)
223 to be at the heart of energy democracy. Or, as Duda (2015, page 9) writes:
224 '*community power needs to be built on community power*' (see also Klimacamp 2012,
225 Farrell 2014, Chavez 2015, Strachan et al. 2015, Angel 2017). We found few sources
226 who focused explicitly on marginalised or disadvantaged communities, with a
227 notable exception of CSI (2013) and Weinrub and Giancattarino (2015).

228
229 Whether focused on control or ownership, the promotion of collective participatory
230 approaches shows a desire not only to create active citizens within the current
231 political and energy system, but to transform these systems. For example, Becker
232 and Kunze (2014) note that greater citizen participation and local community
233 control are interlinked with the possibility to achieve wider political aspirations.
234 Similarly, Carrilho de Graca and Gomes (2016, p.3) argue that cooperatives are the
235 '*ideal organizational entities*' to implement energy and economic democracy, and as
236 such to involve citizens in creating a more environmentally, social and economically
237 sustainable future.

238
239 The focus of the energy democracy literature largely remains on the role of
240 community-led organisations. A lack of attention for the (historic) role of the state in
241 contributing to ED is notable as key aspects of the electricity system, especially
242 national grids, were typically developed and/or owned by the state in many of the
243 countries from which the ED literature has emerged. There, 'the grid' became
244 analogous to a vision of the state as centralised and techno-centric, but also
245 distributive (van der Horst, 2017). There is now also a recognition among (some)
246 practitioners that the state continues to have a role to play in achieving greater ED
247 (Angel 2017). For example, Chavez (2015) has argued that energy democracy is also
248 about renationalisation and remunicipalisation, as long as it is accompanied by
249 greater public participation. This thus invokes notions of institutional democracy,
250 where the energy system is owned by the state, are effectively advocating for

251 institutional democracy (Lijphart, 2011), but where citizens hold power and have a
252 direct say over state institutions, including its electricity system.

253 2c. (Energy) Democracy of what?

254

255 Thus far, this paper has primarily focused on the social-political aspects of
256 democracy: its aims and the ways of organizing society to achieve this. Also of
257 relevance, however, is the question of what the materiality of energy can bring to
258 conceptualisations of democracy: i.e. what kind of engagement generates a
259 democratic public (Marres and Lezaun 2011)?

260

261 Some within the ED movement focus on 'traditional' forms of participation in
262 decision-making, such as debating, deliberating and voting. For example, Vansintjan
263 (2015) argues that democratic decision-making according to the 'one person, one
264 vote' principle is at the heart of energy democracy. Others also focus on
265 participation in decision-making as a key component of energy democracy (e.g.
266 Farrell 2014, Weinrub and Giancattarino 2015, Kunze & Becker 2014). To facilitate
267 this, Weinrub and Giancattarino (2015, p.16) argue that all relevant information
268 concerning a proposed energy project should be available to the public in '*useable*'
269 and '*multi-lingual formats*' in order to facilitate community engagement in policy
270 decisions. This is a common way in which energy publics are framed: as
271 'deliberative citizens' who can voice their opinions in discursive fora (Chilvers and
272 Longhurst 2016).

273

274 Struggles around the social, economic and political relations embedded in energy do
275 not, however, solely taking place in discursive fora. A number of publications in
276 recent years have sought to theorise how the socio-material conditions of public
277 participation can challenge or complement visions of public action grounded in
278 deliberative processes (for example Marres and Lezaun 2011, Chilvers and
279 Longhurst 2016, Smith and Stirling 2016).

280

281 This has, in part, been taken up by the ED literature. This body of literature is built
282 on the idea that the material features of renewable energy technologies (i.e. their
283 decentralised nature) can open up different forms of participation. In particular the
284 literature has envisaged these non-deliberative forms of participation to take place
285 through investment in, or control/ownership of, energy generating resources
286 (Weinrub 2014, Weinrub and Giancattarino 2015). For some, collective, community-
287 based *ownership* is key to ensuring that greater democratisation is achieved (Kunze
288 and Becker 2015). Others have also argued that '*new models of ownership*' (Powell
289 2016), '*more distributed ownership*' (Pearl-Martinez and Stephens 2016), or '*public*
290 *ownership at the local level*' (Cumbers *et al.* 2013) are essential to achieving greater
291 ED. However, others note that widening ownership does not necessarily equate to
292 more shared control, and thus prefer to focus on broadening control rather than
293 ownership (e.g. Weinrub 2014).

294

295 It is noteworthy that the literature to date appears primarily focused on control or
296 ownership of energy generating technologies. While not explicitly excluded, the
297 literature to date is largely quiet on how other parts of the energy system can be
298 democratised. For example, with a few notable exceptions (e.g. Trade Unions for
299 Energy Democracy 2015; Pearl-Martinez and Stephens 2016), attention for the
300 wider energy value chain and related issues including workers' rights or gender
301 divisions in the energy workforce remain somewhat limited in the energy
302 democracy literature. Furthermore, although access to clean, affordable energy is
303 seen as a key part of energy democracy, we did not find evidence in the energy
304 democracy literature for the ways in which consumption in itself may be able to
305 (re)construct energy systems (see Shove 2012, Chilvers and Longhurst 2016).

306

307 Finally, as Weinrub (2014) notes, this opening up of participation as a result of more
308 distributed energy technologies is not guaranteed (see also Bulkeley *et al.* 2014). A
309 more democratic energy system with more distributed opportunities for
310 participation should therefore not be seen as inherent characteristic of the
311 transition to renewable energy (Calvert 2015). This is well-recognised in the ED
312 literature, with proponents arguing that the path to greater ED may involve 'an
313 ongoing series of multiple struggles over who owns and controls energy' (Angel
314 2016b, p.4; see also Morris and Jungjohann 2016). Nonetheless, as visions for ED are
315 built around the-rescaling of energy production, it is also worth asking: at what
316 scale can ED be achieved?

317

318 2d. Where: at what scale can energy democracy be achieved?

319 In both energy research and political theory, the modern territorial state has often
320 been deemed the appropriate unit of analysis. As the previous sections have shown,
321 however, there is a growing recognition for the spatial frameworks of (energy)
322 citizenship and democracy, addressing not only the 'what' of democracy, but also
323 the 'who' and 'where'. In light of this, there is a case for examining how claims and
324 practices of energy democracy at different scales relate to one another.

325

326 While energy geographers have emphasised the cross-scalar nature of socio-
327 technical energy networks (Calvert 2015), it is notable that the default location and
328 scale of action and analysis in the early energy democracy literature is often the
329 local, perceived as both a geographical scale and a set of social relations. For
330 example, for Farrell (2014) 'local' is one key defining dimension that sets energy
331 democracy apart from 'normal' energy transitions. Cumbers *et al.* (2013) similarly
332 identify the need to localise ownership and decision-making as a priority for
333 achieving greater energy democracy. These literatures often presume that localising
334 ownership will create a fairer distribution of benefits. This also means, however,
335 that 'local' and 'community' are often used as unproblematic categories (Hickey and
336 Mohan 2004). Or, in geographical terms, as spaces which act as containers for
337 particular, desirable, sets of social relations.

338

339 This neglects two important geographical considerations. First, the role of energy
340 generation, distribution and use as an act of territorialisation: expressions of social
341 power in geographical form (Bridge 2011). Viewed this way, the emphasis on the
342 'local' from the energy democracy movement can be seen as an act of boundary
343 ma(r)king, through which the criteria for belonging ('energy citizens'), and thus the
344 subjects of claims for justice (Fraser 2008) are negotiated in order to determine the
345 allocation of resources (Calvert 2015).

346
347 In addition to the process of territorialisation, there is also a second key
348 geographical dimension: how different spaces, at potentially different scales, relate
349 to one another. In the energy democracy literature, there has been a growing
350 awareness of scalar issues. This has been particularly framed as a need to move
351 beyond the local scale, and engage with actors beyond the local in order to develop
352 energy democracy experiments at regional, national and international scales (Angel
353 2016b). What is unclear is how the desired democratic processes and outcomes are
354 altered through this process.

355
356 An interesting example is Trade Unions for Energy Democracy (2015), an
357 international movement for greater local control of the means of energy generation
358 and distribution. Their international approach to promoting local actions shows that
359 claims for, and practices of, energy democracy are multi-scalar. It is, however,
360 currently not clear how local particularity and, thus potentially competing claims for
361 democracy at different scales, may be resolved. This possible complication over the
362 mapping of political space adds poignancy as well as context to the question of whose
363 interests ought to count and how do we determine which scale or map of political
364 space can lead to more just outcomes (Fraser 2008)? There is a struggle here
365 between two potentially different ontological positions: does energy democracy
366 stand for a 'moral universalism' (Mason 1999, p.1) or for the lived experiences of
367 diverse and different actors on the ground?

368

369 3. Synthesis: What kind of democracy is 'energy democracy'?

370 Thus far we have discussed four key aspects of the energy democracy literature: its
371 aims, the key actors identified, the material dimension, and the scale at which
372 energy democracy is to be achieved. Here, we synthesise these findings and analyse
373 them in light of different forms of democracy identified by political theorists in
374 order to answer the question: what kind of democracy is 'energy democracy'?

375

376 Before exploring different forms of democracy, it is perhaps worth starting with a
377 brief, but widely accepted definition of democracy: a political system in which the
378 opportunity to participate in decisions is widely shared among all adult citizens
379 (Dahl 1991). The more comprehensive and significant these opportunities are, the
380 more democratic a political system is deemed to be (Mason 1999).

381

382 The previous sections have shown that energy democracy proponents envisage ED
383 not as much to be an institutional form of democracy, but rather a more
384 participatory form of democracy, involving widespread participation by all citizens
385 in order to influence the decisions that affect them. While this can be through voting
386 (e.g. the co-operative movement's '1 member 1 vote' principle (see also Vansintjan
387 2015), it can also include participation in deliberations, or, more activist or
388 adversarial forms of participation (Mutz 2006). While, arguably, participatory
389 democracy is distinctly different from deliberative or associative forms of
390 democracy (e.g. Mutz 2006), others would consider these latter forms to be subsets
391 of participatory democracy (e.g. Nederveen Pieterse 2001). Here, we adopt the
392 latter view, and discuss what we consider to be three sub forms of participatory
393 democracy in order to better understand the type of democracy that energy
394 democracy proponents are proposing.

395

396 Associative democracy

397 The most clearly identifiable form of democracy that is apparent in the energy
398 democracy literature is associative democracy. Popular democratic criteria like
399 representation, deliberation and participation are not unimportant to energy
400 democracy activists. Nonetheless, their preference for energy resources to be owned
401 or controlled at a local level (e.g. Farrell 2014, Weinrub and Giancattarino 2015),
402 through civil society organisations (e.g. Carrilho da Graça and Gomes 2016, Morris
403 and Jungjohann 2016) most closely echoes Hirst's (2013, p.15) description of
404 Associationalism in the 19th century, which sees voluntary associations; *as an*
405 *alternative to both liberal individualism and socialist collectivism, and as a criticism of*
406 *state centralization and the growth of bureaucracy*. In recent decades the idea of
407 associationalism has been transformed into contemporary designs for associative
408 democracy, particularly as a result of Hirst's (1994) seminal work (Perczynski
409 2000). In its most basic form associative democracy is 'deceptively simple': it argues
410 that 'individual liberty and human welfare are both best served when as many of the
411 affairs of society as possible are managed by voluntary and democratically self-
412 governing associations' (Hirst 1994, p.19). Thus, Hirst, as well as proponents of
413 energy democracy (as analysed in section 2b), seek to turn state-civil society
414 relations on its head: they see self-governing voluntary bodies as the primary means
415 of both democratic governance and the organization of social life.

416

417 Furthermore, both associative democracy and energy democracy proponents extend
418 the notion of participation by focusing on how social life is organized. The
419 associative view advocated by many of those arguing for greater energy democracy
420 thus focuses particularly on recasting the relationship between the state, the
421 market, and civil society through a reorganisation of how and where energy
422 resources are *controlled*. This matters, as energy resources as seen as one of 'the
423 foundation stones of building just and equitable societies' (Transnational Institute
424 2016, 2:20). As shown in the preceding paragraph, it seeks to promote control at the
425 very local level, where it seems relevant to people (also see Dinham 2005). For Hirst
426 (1994), as well as the literature we discussed in section 2a, these associative forms
427 of democratic governance are a means to link procedural and substantive

428 dimensions of democracy, where the management of social affairs by voluntary and
429 self-governing associations is deemed to ensure that both citizen choice and public
430 welfare are best served.

431

432 Deliberative democracy

433 In addition to associative forms of democracy, the energy democracy literature also
434 shows hints of other forms of democracy, particularly deliberative forms. Such a
435 deliberative democracy, grounded in argues that processes of public debate lead to
436 higher quality, and more legitimate, decisions (e.g. Dryzek 2000). It thus envisages
437 civil society as the site where such a form of democracy is enacted; where
438 deliberators share their views and have them challenged through persuasion rather
439 than coercion, manipulation or deception (Dryzek 2000). Some energy democracy
440 proponents have taken this further, to argue that if all those affected by the
441 decisions have been able to participate in the free expression of all needs and points
442 of view, more substantively just outcomes can be achieved (e.g. Kunze & Becker
443 2014).

444

445 There are, however, two concerns around the implementation of deliberative
446 democracy. First, the implementation of direct democracy in large-scale modern
447 societies (e.g. Held 2006). For Hirst (1996) and a small number of ED proponents
448 one solution is to conceptualise democracy as not solely concerned with
449 deliberation within civil society, but as a process of effective two-way
450 communication between the state and organised social groups. 'Conventional'
451 energy governance has been criticised for making decisions to allocate, use and
452 consume energy in particular ways for particular purposes out of the public eye (e.g.
453 Newell and Mulvaney 2013). Some ED proponents (Weinrub 2014, Chavez 2015)
454 argue that the integration of procedural dimensions of deliberative democracy, such
455 as greater transparency, accountability and deliberation in decision-making, with
456 forms of institutional democracy in order to achieve 'negotiated solutions'.

457

458 The second concern, which we discussed earlier, is around whether a deliberative
459 form of democracy necessarily benefits the common good. In particular, Young
460 (1990, 1996) argues that most theories of deliberative democracy offer too narrow
461 a view of the democratic process because they privilege an ideal of a common good
462 in which each participant is supposed to leave behind their different interests and
463 experiences. This is relevant to energy democracy, as while the concept of energy
464 democracy offers a common term for diverse groups to rally around, there are also
465 differences in focus; e.g. specific emphases on the rights of workers in energy
466 systems (Trade Unions for Energy Democracy 2015) or the rights of people of
467 colour in accessing clean energy (CSI 2013, Weinrub 2014). While different actors
468 thus share certain interests, it is not necessarily guaranteed that their ultimate aims
469 or approaches to achieve them are aligned. Particularly, it has been questioned
470 whether inequality of resources, organisation and power may enable some interests
471 to dominate in the definition of a 'common good' (Young 1990, Walker *et al.* 2015).

472

473 These potentially divergent visions of how to achieve the 'future utopia' are
474 currently not very well acknowledged in the energy democracy literature. For
475 example, by arguing that energy democracy is about creating informed communities
476 who understand the 'right relationship of people to natural resources' (Weinrub and
477 Giancattarino 2015), a normative dimension is introduced which presupposes
478 agreement on what this 'right relationship' is. Such a presumed, shared, normative
479 stance has the potential to obscure questions of justice (Walker *et al.* 2015).

480

481 Material democracy

482 Deliberative democracy focus primarily on discursive participation. Associative
483 democracy expands this by also including other forms of engagement as the basis of
484 reshaping social life, but the role of matter and objects play in this process is
485 generally not made explicit. The concept of material democracy is therefore highly
486 relevant to energy democracy as it brings issue of access to, and engagement with,
487 material resources further to the fore. Energy democracy proponents demand a
488 certain level of autonomous engagement with *matter*; they propose that people and
489 communities should be able to decide the future of the energy they generate and
490 use. Their focus has been primarily on energy generation rather than energy
491 consumption, as the generation and distribution of energy are considered to
492 underpin the way the economy and society are organised (Transnational Institute
493 2016). Viewed this way (as we discussed in section 2a), energy democracy appears
494 closely connected with views of material democracy not only as more equitable
495 access to socio-economic resources, but also as a foundation to challenge power
496 imbalances in society.

497

498 For some, however, materiality also plays a different role. They see material
499 engagement as an opportunity for the wider reconstitution of relationships and
500 institutions in society beyond the energy sphere (Angel 2017). As such, these
501 authors show hints of the type of material democracy that Marres (2012) discusses,
502 which is not only concerned with access to, or control over, material resources, but
503 where matter plays an active role in reshaping society more broadly (see also
504 Feenberg 1999). We established in the previous section that particular material
505 features (e.g. decentralised energy generating potential) do not necessarily reflect
506 one particular vision. The question that thus arises who controls the process
507 through which participatory objects are put to 'work' (Smith and Stirling 2016).
508 Much depends on which assumptions are inscribed into the sociotechnical process
509 and how roles are delegated to groups and technologies that put the overall
510 sociotechnical configuration to work (Latour 2005 in Smith and Stirling 2016). The
511 question of how participatory democracy is enacted through work *in* and *on*
512 material objects (Marres and Lezaun 2011) appears, however, not to have received
513 much attention in the ED literature to date.

514

515 Finally, adopting perspectives from Science and Technology Studies, authors such as
516 Marres (2012), Chilvers and Longhurst (2016), and Smith and Stirling (2016) have
517 argued that a materiality perspective can also open up access and participation,
518 where (democratic) energy publics are not seen as pre-conceived, but as emergent

519 and co-produced. Again, the ED literature shows a hint of this perspective by
520 considering non-discursive forms of participation, but how this affects notions of a
521 'democratic energy public' and who is in/excluded has, to date, not been made
522 explicit in the ED literature.

523

524 In summary, the type of democracy that is most clearly promoted by energy
525 democracy proponents is associative democracy, through its promotion of local,
526 civil society organisations as key actors to foster engagement (e.g. participation in
527 decision-making and direct ownership) of renewable energy resources. As we
528 discussed, the literature also draws on other democratic theories, most notably
529 deliberative and material forms of democracy. To date, the connections made
530 between energy democracy and these other democratic theories is, however, often
531 partial and non-explicit. In the next, and final section, we therefore set out the issues
532 raised in, and lessons learned from these democratic theories, and identify future
533 research directions to develop a more robust theory of energy democracy.

534

535

536

Table 2: Key forms of democracy

537 4. Discussion

538 4.1. Energy democracy as (another) material democracy

539 At its heart, the emergence of energy democracy can be seen as part of a broader
540 trend in both research and practice which has sought to foreground the 'stuff' of
541 politics (Braun and Whatmore 2010) based on an understanding that 'objects... bind
542 all of us in ways that map out public space profoundly' (Latour and Weibel 2005,
543 p.15). In other words, it raises the question: how do material objects, and our
544 relations with them, constitute particular forms of social and political life? While
545 matter and politics have long been connected, this connection has increasingly
546 become a centre of focus of both social movements and academic research. This
547 raises an important question for energy democracy researchers and activists: is
548 energy different from other forms of material democracy / what can it learn from
549 research and movements on other material democracies?

550

551 Links between matter and politics is found in the (old) idea of the 'property-owning
552 democracy', with roots in both rightwing conservatism and leftwing egalitarianism
553 (Jackson 2012), but which has more recently been used to advance the ideals of a
554 society characterised by commodification and individualisation (Rossi 2013).

555 Elsewhere, 'adjective' material democracies have been proposed to study or
556 advocate for a variety of socio-material relations, such as representative
557 environmental democracy (Ball 2006), participatory food democracy (Hassanein
558 2008) and deliberative water (Susskind 2013) and innovation democracy (Smith
559 and Stirling 2016). These different contributions thus reflect diverse ways in which
560 authors have conceptualised the connection between matter and politics.

561

562 Nonetheless, there are a few commonalities identified in much of the recent critical
563 literature that links matter and politics. One such commonality is the effort to
564 counter (what is perceived to be) an increasingly commodified, individualised and
565 consumption-based society proposed by contemporary 'property-owning
566 democracy' advocates. Instead, it considers democracy as both the means and
567 outcome of resource decommodification (Bakker 2007), with collective,
568 decentralised control seen as central to reshaping socio-material relations. As such,
569 many of the third sector organisations as well as activist scholars writing on these
570 new arenas for democracy, frame them as a response to the ongoing process of
571 neoliberalisation which has been central to shaping these sociomaterial relations in
572 recent decades. The desire to (re)claim the rights to particular materials in order to
573 reshape societal relations has thus much in common with other social movements
574 such as Reclaim the Streets or Right to the City, which seek to exercise collective
575 power to reshape processes of (neoliberal) urbanisation (Harvey 2008).
576

577 However, it can be argued that energy democracy also has several characteristics
578 that set it aside from other material democracies. It is useful to recognise that the
579 electricity system is the by far the largest machine found on national territory.
580 Energy is also the biggest globally traded commodity and the meta-resource that
581 drives all other commodity chains and the provision of most essential goods and
582 services. Other characteristics include the relative strength of the low carbon energy
583 transition narrative in state policy, public opinion, and the academic and NGO
584 communities in most countries of the global north; advocates of transforming our
585 water or food regimes could only dream of having such a strong transition narrative
586 to work with. Secondly the energy democracy movement is characterised by its
587 focus on fugitive renewable resources that are widely perceived as being public
588 rather than private goods (Van der Horst and Vermeulen 2010). Last but not least,
589 the energy democracy movement has emerged in countries that for generations
590 have had a national grid; a state/regulated monopoly that was both spatially
591 inclusive and economically distributive (Van der Horst 2017). National grid history
592 and alternatives to it (e.g. rural electricity cooperatives in the US) will invariably be
593 shaping specific expectations of the energy democracy movement, which more
594 accurately could have been called 'renewable electricity democracy'.
595

596 To strengthen the energy democracy concept, future research may thus want to
597 consider the specificity of renewable energy's qualities in reshaping democracy, i.e.
598 how renewable energy as a spatially unevenly dispersed and fugitive resource,
599 captured and transmitted instantaneously through an international web of copper
600 wires, affects territorial theorisations of democracy? Also, how does this affect what
601 lessons can be learned from looking at historic initiatives to foster democratic
602 engagement with energy, either through participation in state- or cooperatively-
603 owned utilities? Furthermore, the inclusion of matter in democratic theory,
604 challenges many of the requirements that democratic theory places on participation,
605 such as that actions are independent, self-determined and unbiased (Marres 2012).
606 Future conceptualisations of energy democracy may thus explore the implications of
607 assigning capacities to non-human actors.

608

609 4.2. National variations and questions of scale

610 As can be expected from a term that has become a social movement imaginary (cf
611 Angel, 2016), the actual aims and focuses of energy democracy vary between
612 different publications and advocates. Generic differences of political vision can be
613 obscured by different national, political and material (energy system) contexts that
614 activists seek to transform. Within the limited space of this paper we can only
615 provide a few speculative examples: Those writing in a German context where the
616 'Energie Wende' is pursued by the federal government – may be more likely to see
617 energy democracy as a transition pathway that is already in (some) progress
618 (Rommel *et al.* 2016). Some US organisations (e.g. Institute of Solar Power
619 Democracy, undated) embrace the notion of free enterprise at the individual level
620 while pushing back against any notion that resources belong to the state (note also
621 the particularly American debate about the role of property in notions of
622 citizenship; Hockett 2005, Singer 2006). As a third example, the Scottish context for
623 community energy is linked to the devolution of central (UK) state power, enabling
624 the newly established Scottish Parliament to seek land reform by helping rural
625 communities to buy up the (feudal) estates they live on (Bryden and Geisler 2007,
626 Brauholtz-Speight 2015, van Veelen 2017). Furthermore, it has been argued that
627 the concept has limited traction in the Global South, where concepts of energy
628 sovereignty, justice, and colonialism may have greater resonance (Angel 2016b).

629

630 These national variations raise important questions around how claims for energy
631 democracy in one place relate to similar claims in other places, and at different
632 scales. Thinking about (energy) democracy as a pre-designed set of principles and
633 structures, to be replicated from place-to-place is not necessarily the way forward:
634 local particularity means what works in one place is not guaranteed to work
635 somewhere else (Angel 2016b). While Angel (2016b) thus recognises the plurality
636 of visions and experiences within the energy democracy movement, this debate is
637 expected to have another dimension as different spaces and scales for energy
638 democracy interact. Historically, democratic theorists have focused on the scale of
639 the nation-state, but the energy democracy movement operates at both a sub-
640 national and supra-national level (e.g. Trade Unions for Energy Democracy). As use
641 of the concept spreads, claims for greater energy democracy are likely to run up
642 against counter claims in different places or at different scales, whose ontological
643 assumptions about the meanings of democracy they do not necessarily share.

644

645 It thus raises two important questions that future research may want to address:
646 Can normative and universalist claims or interpretations of 'energy democracy' be
647 aligned with interpretations which consider it as an emergent and co-constructed
648 (local and contextual) phenomenon? And how are claims for democracy constituted
649 by, and potentially re-constitute, social-spatial relations in the process? There is also
650 clear scope for broadening out the question of energy democracy to the Global South
651 and to other sections of the energy system, and connect this with debates about
652 'resource decentralization' (Meinzen-Dick *et al.* 2001, Ribot 2003) and the

653 emergence of commercial mini grids (Ulsrud *et al.* 2011) in countries where the
654 state has struggled to extend the provision of grid Electricity.
655

656 4.3. Energy democracy as an associative democracy

657 At its heart, the energy democracy movement has sought to change the socio-
658 economic relations embedded in the energy systems by encouraging greater public
659 involvement and control. The movement primarily advocates for this to be achieved
660 through community control of the means of electricity generation and distribution.
661 As such, the movement draws heavily on associational forms of democracy, where
662 civil society groups are seen as a 'third way', a push back against current, dominant,
663 privatised energy systems in the countries that the literature discussed here has
664 emerged from, but also preferable to centralised and top-down state ownership.
665

666 Nonetheless, some are seeking to bring the state back into energy democracy
667 practice and theory. For example, Chavez (2015) and suggest that where there are
668 concrete possibilities, privately owned utilities should be renationalised or
669 remunicipalised, as long as this is accompanied by greater and more genuine
670 participation in state-owned utilities (Weinrub 2014). Thus, the emphasise for these
671 authors is on community participation and control, rather than full ownership.
672 Conceptually, others also disagree with the non-state conceptualisation of the co-
673 operative social movements (e.g. Angel 2017). They have warned that the
674 decentralisation favoured by social movements plays into the hand of
675 neoliberalisation, where active citizens are assigned responsibility for previously
676 collectively-provided services (DeFilippis *et al.* 2006, Biesta 2009). Through an
677 analysis of how the energy democracy movement in Berlin has worked 'In-Against-
678 and-Beyond the State', Angel's (2016c) recent article has been a particularly useful
679 contribution to theorising the role of the state. Further work, however, may wish to
680 build on this to better understand the different roles the state can play in different
681 national/material contexts.
682

683 Additionally, what is evident from the associative characteristics found in the
684 energy democracy literature is that democracy is not just seen as a type of political
685 system, or a way to aggregate people's preferences, but as a type of society we wish
686 to live in. This, however assumes a connection between associative forms of
687 democracy, participation, and just outcomes. The literature on participatory
688 development in particular has highlighted that local control does not necessarily
689 equal greater participation (e.g. Agrawal and Gibson 1999, Lane and Corbett 2005,
690 Edwards 2009). Furthermore, when individuals or groups have conflicting interests
691 and differ in power, we are to remember that greater participation can also result in
692 unjust and oppressive outcomes (Young 1990, Walker *et al.* 2015). At the moment,
693 potentially divergent visions of energy democracy are currently not very well
694 acknowledged in the literature.
695

696 The energy democracy literature currently considers (associative forms of)
697 democracy a means to achieve more just outcomes. However, the relationship

698 between process and outcome is insufficiently developed and under -theorised. The
699 construction of a 'future utopia' (Angel 2016a) is not power neutral and future
700 research should question whose definition of the 'common good' is accepted.

701
702

703 4.4. Materiality, citizenship and justice

704 This study has also revealed that the materiality of energy is a recurring theme that
705 adds an extra dimension to political theory debates around democratic governance.
706 Both energy citizenship and energy democracy seek to theorise public participation
707 through material engagement. The questions of citizenship is particularly important
708 for democracy, as the legitimacy of democratic governance depends on the extent to
709 which democratic structures and practices are recognised and supported by citizens
710 (Biesta 2009). Drawing explicitly on a materiality perspective, Marres (Marres and
711 Lezaun 2011, Marres 2012) has offered a valuable contribution that deepens the
712 theoretical foundations of energy citizenship. Of particular relevance is Marres'
713 (2012) argument that public participation through material engagement can help
714 revive democracy by including new actors and practices of engagement. It thus
715 focuses on the material dimensions of participation, drawing on phenomenological
716 philosophical traditions to define citizenship not in abstract terms, or in terms of
717 communicative action, but as an embodied activity that takes place in a particular
718 location, using specific technologies or objects (Marres 2012).

719

720 Concepts of energy citizenship and democracy thus open up the possibility of
721 conceiving participation not solely in deliberative forms, but also raises questions
722 around the impact of material forms of participation on the changing boundaries
723 between the public and private sphere. This has a number of consequences in terms
724 of how boundaries of participation (by citizens) and justice are marked; who
725 'belongs' and who should benefit? Energy democracy thus implies a particular form
726 of energy citizenship that is expressed through the leveraging of personal finance,
727 material assets (e.g. roof of your house) and time (committing manual and
728 organisational labour). The justice implications may relate directly to questions of
729 inclusivity (e.g. who can participate, who can benefit) and more indirectly to
730 potential scalar effects over time (e.g. risk of poorer energy service or higher bills
731 for those who are excluded in areas of high participation). We would thus encourage
732 future energy democracy research to consider in more detail different forms of
733 participation that a material perspective opens up; but also the consequences of this
734 in terms of claims of citizenship and justice.

735

736 Furthermore, it is important to remember that theories of democracy are not only
737 concerned with participation, but more broadly with the procedures and
738 institutions required for capturing the views of citizens and translating them into
739 outcomes (Dowding *et al.* 2004). As such, while it is closely connected to both
740 procedural and recognition dimensions of justice, a focus on democracy also invites
741 a greater focus on the 'nuts and bolts' of governing, including issues of
742 accountability, transparency and dispute resolution. An interesting question would

743 be how a material perspective could address some of these important democratic
744 themes, and could help the concept of ED to complement research on related
745 concepts of energy citizenship, and justice.

746
747 Finally, theorizing about energy democracy and materiality cannot be limited to
748 electricity systems. The academic literature on ED is yet to fully engage with existing
749 global debates on energy and democracy, which have grown for example around the
750 'resource curse', the occurrence of corruption and violence in oil producing states
751 and the intimate relationships between industry (e.g. 'big oil', car manufacturers,
752 defence) and national governments (in economics, political economy and political
753 science see Ross (1999), Goldberg *et al.* (2008); in geography see Watts (2004); in
754 history and politics, see Yergin (2012) and especially Mitchell's (2009)'carbon
755 democracy'). The desired transition to a more electrified, low carbon energy system
756 may in theory imply a push-back against the incumbents of fossil fuel regimes and
757 associated problematic practices, but this is a topic for further scrutiny, rather than
758 a foregone conclusion.

759

760 5. Conclusion

761 In this paper we have reviewed the energy democracy literature according to four
762 key dimensions; its aims ('why'), actors ('who'), material dimensions ('what'); and
763 places & scales where it operates ('where'). From this review it is evident that the
764 ED literature reflects a decentralised terrain. While definitions vary, there are two
765 key dimensions present in the literature. First, the electricity system (the focus of
766 ED), as well as our economy and society should become more inclusive, equitable
767 and low carbon. Secondly, political power and decision making should be more
768 devolved to the local level. With regards to the first dimension, the literature focuses
769 on two aspects; Access to the electricity grid should be widened, especially for new
770 and small renewable electricity producers (typically as a push back against
771 state/privatized monopoly power of the fossil fuel era); secondly, the ownership
772 base for various aspects of our electricity system should be broadened (typically a
773 push back against the dominance of big, corporate utilities). Finally, the literature is
774 clear that greater citizen involvement and ownership should be achieved through
775 voluntary means; cooperation and local self-organisation are important. ED as a
776 social movement is thus most closely linked to the idea(l) of associative democracy,
777 seeking to apply some of the ideas of what was a 19th century idea of bottom-up,
778 community self-help approach, to low carbon electricity systems in the 21st century.

779

780 We have noted the various limitations of the ED literature to date and in the
781 discussion we identified several avenues for future research. Technological change
782 is inherently political and the transition to a low carbon society is arguably the
783 largest technological project ever faced by humanity. Clearly we are not alone in
784 making the argument that a deeper academic engagement with energy democracy
785 as a movement and a concept is important precisely because *the possibility of more
786 democratic futures [..], depends on the political tools with which we address the
787 passing of the era of fossil fuel* (Mitchell 2009, p. 423).

788
789

790 Acknowledgements

791 We wish to thank the two reviewers for their insightful comments, which greatly
792 helped strengthen the content and structure of this paper. We also thank Dr. Claire
793 Haggett for feedback on an earlier version of this manuscript. This research was
794 funded by the Economic and Social Research Council.
795

796 References

- 797 Agrawal, A. and Gibson, C., 1999. Enchantment and Disenchantment: The Role of
798 Community in Natural Resource Conservation. *World Development*, 27 (4), 629–
799 649.
- 800 Angel, J., 2016a. *Towards Energy Democracy: Discussions and outcomes from an*
801 *international workshop*. Amsterdam: Rosa Luxemburg Foundation.
- 802 Angel, J., 2016b. *Strategies of Energy Democracy*. Brussels.
- 803 Angel, J., 2017. Towards an Energy Politics In-Against-and-Beyond the State: Berlin's
804 Struggle for Energy Democracy. *Antipode*, 49 (3), 557–576.
- 805 Bakker, K., 2007. The 'Commons' Versus the 'Commodity': Alter-globalization, Anti-
806 privatization and the Human Right to Water in the Global South. *Antipode*, 39
807 (3), 430–455.
- 808 Bakker, K., 2008. The Ambiguity of Community: Debating Alternatives to Private-
809 Sector Provision of Urban Water Supply. *Water Alternatives*, 1 (2), 236–252.
- 810 Ball, T., 2006. Democracy. In: A. Dobson and R. Eckersley, eds. *Political theory and*
811 *the ecological challenge*. Cambridge: Cambridge University Press, 131–147.
- 812 Bauwens, T. and Eyre, N., 2017. Exploring the links between community-based
813 governance and sustainable energy use: Quantitative evidence from Flanders.
814 *Ecological Economics*, 137, 163–172.
- 815 Biesta, G., 2009. What kind of citizenship for European higher education? Beyond
816 the competent active citizen. *European Educational Research Journal*, 8 (2),
817 146–158.
- 818 Braun, B. and Whatmore, S.J., 2010. *Political matter : technoscience, democracy, and*
819 *public life*. London: University of Minnesota Press.
- 820 Brauholtz-Speight, T., 2015. Scottish community land initiatives: going beyond the
821 locality to enable local empowerment. *People, Place and Policy People, Place and*
822 *Policy Journal Compilation*, (92), 123–138.
- 823 Bridge, G., 2011. Resource geographies 1: Making carbon economies, old and new.
824 *Progress in Human Geography*, 35 (6), 820–834.
- 825 Bryden, J. and Geisler, C., 2007. Community-based land reform: Lessons from
826 Scotland. *Land Use Policy*, 24 (1), 24–34.
- 827 Bulkeley, H., Castán Broto, V., and Maassen, A., 2014. Low carbon transitions and the
828 reconfiguration of urban infrastructure. *Urban Studies*, 51 (7), 1471–1486.
- 829 Burke, M.J. and Stephens, J.C., 2017. Energy democracy: Goals and policy
830 instruments for sociotechnical transitions. *Energy Research & Social Science*, 33,

831 35–48.

832 Burke, M.J. and Stephens, J.C., 2018. Political power and renewable energy futures: A
833 critical review. *Energy Research & Social Science*, 35, 78–93.

834 Calvert, K., 2015. From ‘energy geography’ to ‘energy geographies’: Perspectives on
835 a fertile academic borderland. *Progress in Human Geography*, 40 (1), 1–21.

836 Carrilho da Graça, G. and Gomes, S., 2016. *Exploring transition pathways to*
837 *sustainable, low carbon societies*. Lisbon, Portugal.

838 Chavez, D., 2015. The meaning, relevance and scope of energy democracy [online].
839 *Transnational Institute*. Available from: [https://www.tni.org/en/article/the-](https://www.tni.org/en/article/the-meaning-relevance-and-scope-of-energy-democracy)
840 [meaning-relevance-and-scope-of-energy-democracy](https://www.tni.org/en/article/the-meaning-relevance-and-scope-of-energy-democracy) [Accessed 18 Oct 2016].

841 Chilvers, J. and Longhurst, N., 2016. Participation in Transition(s): Reconceiving
842 Public Engagements in Energy Transitions as Co-Produced, Emergent and
843 Diverse. *Journal of Environmental Policy & Planning*, 18 (5), 585–607.

844 Collier, D. and Levitsky, S., 1997. Democracy with Adjectives: Conceptual Innovation
845 in Comparative Research. *World Politics*, 49 (3), 430–451.

846 CSI, 2013. *Energy Democracy: Community-led Solutions*. New York, NY: Center for
847 Social Inclusion.

848 Cumbers, A., Danson, M., Whittam, G., Morgan, G., and Callaghan, G., 2013.
849 *Repossessing the Future A Common Weal Strategy for Community and*
850 *Democratic Ownership of Scotland’s Energy Resources*. Biggar.

851 Dahl, R.A., 1991. *Modern Political Analysis*. 5th ed. London: Prentice Hall.

852 DeFilippis, J., Fisher, R., and Shragge, E., 2006. Neither romance nor regulation: Re-
853 evaluating community. *International Journal of Urban and Regional Research*, 30
854 (3), 673–689.

855 Democracja Energetyczna, 2017. Democracja Energetyczna [online]. *Democracja*
856 *Energetyczna*. Available from: <http://democracjaenergetyczna.pl/> [Accessed 1
857 May 2017].

858 Devine-Wright, P., 2007. Energy citizenship: psychological aspects of evolution in
859 sustainable energy technologies. In: J. Murphy, ed. *Governing Technology for*
860 *Sustainability*. London: Earthscan, 63–88.

861 Dinham, A., 2005. Empowered or over-powered? The real experiences of local
862 participation in the UK’s New Deal for Communities. *Community Development*
863 *Journal*, 40 (3), 301–312.

864 Dowding, K., Goodin, R.E., and Patemen, C., 2004. Introduction: Between justice and
865 democracy. In: K. Dowding, R.E. Goodin, and C. Patemen, eds. *Justice &*
866 *Democracy*. Cambridge: Cambridge University Press, 1–24.

867 Dryzek, J.S., 2000. *Deliberative democracy and beyond: liberals, critics, contestations*.
868 Oxford: Oxford University Press.

869 Edwards, M., 2009. *Civil Society*. Cambridge: Polity Press.

870 Faber, D.R. and McCarthy, D., 2003. Neo-liberalism, Globalization, and the Struggle
871 for Ecological Democracy: Linking Sustainability and Environmental Justice. In:
872 J. Agyeman, R. Bullard, and B. Evans, eds. *Just Sustainabilities: Development in an*
873 *Unequal World*. London: Earthscan, 38–63.

874 Farrell, J., 2014. *Beyond Utility 2.0 to Energy Democracy*. Minneapolis, MN.

875 Feenberg, A., 1999. *Questioning Technology*. London: Routledge.

876 Fraser, N., 2008. *Scales of Justice: Reimagining Political Space in a Globalizing World*.

877 Cambridge: Polity Press.

878 Fraune, C., 2015. Gender matters: Women, renewable energy, and citizen
879 participation in Germany. *Energy Research & Social Science*, 7, 55–65.

880 Giancattarino, A., 2012. *Energy Democracy: Supporting community innovation*. New
881 York, NY.

882 Goldberg, E., Wibbels, E., and Mvukiyehe, E., 2008. Lessons from Strange Cases:
883 Democracy, Development, and the Resource Curse in the U.S. States.
884 *Comparative Political Studies*, 41 (4–5), 477–514.

885 Harvey, D., 2008. The Right to the City. *New Left Review*, 53, 23–40.

886 Hassanein, N., 2008. Locating Food Democracy: Theoretical and Practical
887 Ingredients. *Journal of Hunger & Environmental Nutrition*, 3 (2–3), 268–308.

888 Hickey, S. and Mohan, G., 2004. Towards participation as transformation: critical
889 themes and challenges. In: S. Hickey and G. Mohan, eds. *Participation: from
890 tyranny to transformation? Exploring new approaches to participation in
891 development*. London: Zed Books.

892 Hirst, P., 1994. *Associative Democracy*. Cambridge: Polity Press.

893 Hockett, R.C., 2005. A Jeffersonian Republic by Hamiltonian Means: Values,
894 Constraints & Finance in an Authentic American Ownership Society.
895 *Southern California Law Review*, 79, 45–164.

896 Van der Horst, D., 2017. Energy landscapes of less than 2 degrees global warming.
897 In: K. Calvert and B. Solomon, eds. *Handbook on the Geographies of Energy*.
898 Cheltenham: Edward Elgar Publishing.

899 Van der Horst, D. and Vermeulen, S., 2010. Wind Theft, Spatial Planning, and
900 International Relations. *Renewable Energy Law and Policy Review*, 2010.

901 Jackson, B., 2012. Property-Owning Democracy: A short history. In: M. O'Neill and T.
902 Williamson, eds. *Property-Owning Democracy: Rawls and Beyond*. Oxford, UK:
903 Wiley-Blackwell, 33–52.

904 Jenkins, K., McCauley, D., and Forman, A., 2017. Energy justice: A policy approach.
905 *Energy Policy*.

906 Jenkins, K., McCauley, D., Heffron, R., Stephan, H., and Rehner, R., 2016. Energy
907 justice: A conceptual review. *Energy Research & Social Science*, 11, 174–182.

908 Johnston, J., Biro, A., and MacKendrick, N., 2009. Lost in the Supermarket: The
909 Corporate-Organic Foodscape and the Struggle for Food Democracy. *Antipode*,
910 41 (3), 509–532.

911 Kassulke, N., 2003. A fresh look at energy [online]. *Wisconsin Natural Resource
912 magazine*. Available from:
913 <http://dnr.wi.gov/wnrmag/html/stories/2003/feb03/energy.htm> [Accessed 6
914 Sep 2017].

915 Klimacamp Lausitzcamp, 2012. What is energy democracy? [online]. *Energie
916 Demokratie*. Available from: [http://energie-demokratie.de/what-is-energy-
917 democracy/](http://energie-demokratie.de/what-is-energy-democracy/) [Accessed 16 Dec 2016].

918 Kunze, C. and Becker, S., 2014. *Energy democracy in Europe: A survey and outlook*.
919 Brussels.

920 Kunze, C. and Becker, S., 2015. Collective ownership in renewable energy and
921 opportunities for sustainable degrowth. *Sustainability Science*, 10, 425–437.

922 Lane, M.B. and Corbett, T., 2005. The Tyranny of localism: Indigenous participation

923 in community-based environmental management. *Journal of Environmental*
924 *Policy & Planning*, 7 (2), 141–159.

925 Latour, B. and Weibel, P., 2005. *Making things public: atmospheres of democracy*.
926 Cambridge, MA: MIT Press.

927 Levkoe, C.Z., 2006. Learning Democracy Through Food Justice Movements.
928 *Agriculture and Human Values*, 23 (1), 89–98.

929 Marres, N., 2012. *Material Participation: Technology, the Environment and Everyday*
930 *Publics*. Basingstoke: Palgrave Macmillan.

931 Marres, N. and Lezaun, J., 2011. Materials and devices of the public: an introduction.
932 *Economy and Society*, 40 (4), 489–509.

933 Mason, M., 1999. *Environmental Democracy*. London: Earthscan.

934 McHarg, A., 2016. Community Benefit through Community Ownership of Renewable
935 Generation in Scotland : Power to the People ? In: L. Barrera-Hernandez, B.
936 Barton, L. Goddne, A. Lucas, and A. Ronne, eds. *Sharing the Costs and Benefits of*
937 *Energy and Resource Activity*. Oxford: Oxford Univ, 297–337.

938 Meinzen-Dick, R.S., Knox, A., and Di Gregorio, M., 2001. *Collective action, property*
939 *rights, and devolution of natural resource management*. Workshop on Collective
940 Action, Property Rights, and Devolution of Natural Resource Management.
941 Puerto Azul, Cavite, Philippines.

942 Mitchell, T., 2009. Carbon democracy. *Economy and Society*, 38 (3), 399–432.

943 Mohan, G. and Hickey, S., 2004. Relocating participation within a radical politics of
944 development: critical modernism and citizenship. In: S. Hickey and G. Mohan,
945 eds. *Participation: from tyranny to transformation? Exploring new approaches to*
946 *participation in development*. London: Zed Books, 59–74.

947 Morris, C. and Jungjohann, A., 2016. *Energy Democracy: Germany's ENERGIEWENDE*
948 *to Renewables*. London: Palgrave Macmillan.

949 Muttitt, G., 2006. The price of democracy [online]. *PLATFORM*. Available from:
950 <http://www.carbonweb.org/showitem.asp?article=209&parent=9> [Accessed 6
951 Sep 2017].

952 Mutz, D.C., 2006. *Hearing the other side : deliberative versus participatory democracy*.
953 Cambridge University Press.

954 Nederveen Pieterse, J., 2001. Participatory democratization reconceived. *Futures*, 33
955 (5), 407–422.

956 Newell, P. and Mulvaney, D., 2013. The political economy of the 'just transition'. *The*
957 *Geographical Journal*, 179 (2), 132–140.

958 Pearl-Martinez, R. and Stephens, J.C., 2016. Toward a gender diverse workforce in
959 the renewable energy transition. *Sustainability: Science, Practice & Policy*, 12
960 (1).

961 Perczynski, P., 2000. Active citizenship and associative democracy. In: M. Saward,
962 ed. *Democratic Innovation*. Oxon: Routledge.

963 Powell, D., 2016. Why a democratic energy system for the UK is inevitable [online].
964 *Bright Blue*. Available from:
965 [http://green.brightblue.org.uk/blog/2016/5/4/why-a-democratic-energy-](http://green.brightblue.org.uk/blog/2016/5/4/why-a-democratic-energy-system-for-the-uk-is-inevitable)
966 [system-for-the-uk-is-inevitable](http://green.brightblue.org.uk/blog/2016/5/4/why-a-democratic-energy-system-for-the-uk-is-inevitable) [Accessed 18 Oct 2016].

967 Ribot, J.C., 2003. Democratic Decentralization of Natural Resources. In: N. van de
968 Walle, N. Ball, and V. Ramachandran, eds. *Beyond Structural Adjustment: The*

969 *Institutional Context of African Development*. New York, NY: Palgrave Macmillan
970 US, 159–182.

971 Rogers, J.C., Simmons, E. a., Convery, I., and Weatherall, A., 2008. Public perceptions
972 of opportunities for community-based renewable energy projects. *Energy*
973 *Policy*, 36 (11), 4217–4226.

974 Rommel, J., Radtke, J., von Jorck, G., Mey, F., and Yildiz, Ö., 2016. Community
975 renewable energy at a crossroads: A think piece on degrowth, technology, and
976 the democratization of the German energy system. *Journal of Cleaner*
977 *Production*.

978 Ross, M.L., 1999. The Political Economy of the Resource Curse. *World Politics*, 51 (2),
979 297–322.

980 Rossi, U., 2013. On Life as a Fictitious Commodity: Cities and the Biopolitics of Late
981 Neoliberalism. *International Journal of Urban and Regional Research*, 37 (3),
982 1067–1074.

983 Shiva, V., 2006. *Resisting Water Privatisation, Building Water Democracy*.

984 Shove, E., 2012. Energy Transitions in Practice: The Case of Global Indoor Climate
985 Change. In: D. Loorbach and G. Verbong, eds. *Governing the Energy Transition:*
986 *Reality, Illusion or Necessity?* London: Routledge, 51–74.

987 Singer, J.W., 2006. The Ownership Society and the Takings of Property: Castles,
988 Investments, and Just Obligations. *Harvard Environmental Law Review*, 30, 309–
989 338.

990 Smith, A. and Stirling, A., 2016. *Grassroots innovation and innovation democracy*.
991 Brighton.

992 Sovacool, B.K., 2011. Seven suppositions about energy security in the United States.
993 *Journal of Cleaner Production*, 19 (11), 1147–1157.

994 Sovacool, B.K. and Dworkin, M.H., 2015. Energy justice: Conceptual insights and
995 practical applications. *Applied Energy*, 142, 435–444.

996 Stirling, A., 2015. *Towards Innovation Democracy? Participation, responsibility and*
997 *precaution in the politics of science and technology*. Brighton.

998 Susskind, L., 2013. Water and democracy: new roles for civil society in water
999 governance. *International Journal of Water Resources Development*, 29 (4), 666–
1000 677.

1001 Sweeney, S., 2013. *Resist, Reclaim, Restructure: Unions and the Struggle for Energy*
1002 *Democracy*. New York, NY.

1003 Szulecki, K., 2018. Conceptualizing energy democracy. *Environmental Politics*, 27 (1),
1004 21–41.

1005 Trade Unions for Energy Democracy, 2015. About the Initiative [online]. *Trade*
1006 *Unions for Energy Democracy*. Available from:
1007 <http://unionsforenergydemocracy.org/about/about-the-initiative/> [Accessed
1008 18 Dec 2016].

1009 Transnational Institute, 2016. Towards Energy Democracy [online]. *Youtube*.
1010 Available from: <https://www.youtube.com/watch?v=sZ01FpJPPeM&t=145s>
1011 [Accessed 21 Feb 2018].

1012 Ulsrud, K., Winther, T., Palit, D., Rohracher, H., and Sandgren, J., 2011. The Solar
1013 Transitions research on solar mini-grids in India: Learning from local cases of
1014 innovative socio-technical systems. *Energy for Sustainable Development*, 15 (3),

1015 293–303.

1016 Vansintjan, D., 2015. *The energy transition to energy democracy*. Antwerp, Belgium.

1017 van Veelen, B., 2017. Making Sense of the Scottish Community Energy Sector – An

1018 Organising Typology. *Scottish Geographical Journal*, 133 (1), 1–20.

1019 Van Veelen, B., 2018. Negotiating energy democracy in practice: governance

1020 processes in community energy projects. *Environmental Politics*, 1–22.

1021 Walker, E.T., McQuarrie, M., and Lee, C.W., 2015. Rising Participation and Declining

1022 Democracy. In: C.W. Lee, M. McQuarrie, and E.T. Walker, eds. *Democratizing*

1023 *Inequalities*. New York: New York University Press.

1024 Walker, G., 2008. Decentralised systems and fuel poverty: Are there any links or

1025 risks? *Energy Policy*, 36, 4514–4517.

1026 Watts, M., 2004. Resource curse? governmentality, oil and power in the Niger Delta,

1027 Nigeria. *Geopolitics*, 9 (1), 50–80.

1028 Weinrub, A., 2014. *Expressions of Energy Democracy: Perspectives on an Emerging*

1029 *Movement*. Oakland, CA: Local Clean Energy Alliance.

1030 Weinrub, A. and Giancattarino, A., 2015. *Toward a Climate Justice Energy Platform:*

1031 *Democratizing Our Energy Future*. Oakland, CA: Local Clean Energy Alliance.

1032 Weis, L., Becker, S., and Naumann, M., 2015. *Energiedemokratie: grundlage und*

1033 *perspective einer kritischen energieforschung*. Berlin: Rosa Luxemburg Stiftung.

1034 Yergin, D., 2012. *The quest : energy, security and the remaking of the modern world*.

1035 London: Penguin.

1036 Young, I., 1996. Communication and the Other: Beyond Deliberative Democracy. In:

1037 S. Benhabib, ed. *Democracy and difference. Contesting the boundaries of the*

1038 *political*. Chichester: Princeton University Press, 120–135.

1039 Young, I.M., 1990. *Justice and the Politics of Difference*. Princeton, NJ: Princeton

1040 University Press.

1041

1042

1043

1044