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Introduction

Frans H. J. M. Coenen and Thomas Hoppe

1.1 Trends and Observations in European Renewable Energy Communities

The use of renewable energy helps to mitigating climate change. Besides generating energy that avoids emitting greenhouse gases and does not cause air pollution,¹ it has a much wider impact on society. The economic

¹Next to burning wood locally, which is evidenced to seriously pollute the air and contribute to problems related to nitrogen emissions. Moreover, burning wood can cause a nuisance to local residents in the form of odour nuisance, health problems and soot deposits. URL: <https://www.rivm.nl/toolkit-houtrook-en-gezondheid/vraag-en-antwoord-houtrook>

F. H. J. M. Coenen (✉)

Faculty of Behavioural, Management and Social Sciences,

University of Twente, Enschede, The Netherlands

e-mail: f.h.j.m.coenen@utwente.nl

T. Hoppe

Faculty of Technology, Policy and Management, Delft University of

Technology, Delft, The Netherlands

e-mail: t.hoppe@tudelft.nl

impact results from diversification of the energy supply, in reducing dependence on imported fuels, and in leading to new economic activities that create jobs in manufacturing, installation, and more. Furthermore, there are positive social aspects such as stronger community solidarity and spirit, because many renewable energy activities take place within local communities. Forms of renewable energy, like solar power and wind energy, do not always need a centralized energy systems approach, and can be scaled down and used to serve the needs of local communities. Moreover, this does not need to depend on the energy production and supply from large energy supplying companies. Local communities can reap the benefits from distributed generation, and technically speaking have the possibility to manage and operate decentralized energy systems themselves. In this sense, renewable energy could be seen as a way to empower local communities. Because of this possibility of decentralized, renewable energy generation organized within local communities, it is often associated with the concept of community energy. For groups of citizens and communities that collectively organize decentralized energy actions (with application in the domains of renewable energy, energy efficiency, and energy service provision) the concept ‘Community Energy’ (CE) is increasingly used among scholars in academic debates as well as in policy practice. However, CE is often used and widely interpreted by an increasing number of scholars. As a consequence, there are numerous definitions and meanings abound, which are caused by a wide variety of activities and projects that each contribute to the plurality of the concept (Brunner, 2018). Nonetheless, an often-used definition describes CE as a wide range of citizen initiatives that are concerned with greening (parts of) energy systems, usually but not only limited to the local or regional scale (Bomberg & McEwen, 2012).

Through the “Clean energy for all Europeans” package (CEP), the EU has introduced the concept of ‘energy communities’ in its legislation, notably as: (a) ‘citizen energy communities’ (Article 2 of the Electricity Directive) and (b) ‘renewable energy communities’ (RECs) (Article 2 of the Renewable Energy Directive). In this edited volume, we address REC initiatives in different continental European countries in the light of the revised EU Renewables Directives. The aim of this introductory chapter is not to provide a systematic literature review on renewable energy

community initiatives, but to position the goal and questions of this volume in relevant academic debates surrounding the growing academic research domain of CE, contributing to “a bulwark of empirical cases, theoretical reflections and methodological tools” (Creamer et al., 2019, p. 1). Neither does this chapter aim to provide an overview of definitions and characteristics of these citizen initiatives that go by very different names in the academic literature and policy practice, like citizen-led renewable energy initiatives, local renewable energy organizations (LREOs), local low-carbon energy initiatives (LLCEIs) or (even) renewable energy supplying cooperatives (REScoops). In this volume we use the Renewable Energy Directive concept of ‘renewable energy communities’ (RECs) for all citizen-led renewable energy initiatives. In Sect. 1.2 of this chapter, the renewable energy communities’ definition and the characteristics of the EU directives and policy are discussed. The defining characteristics of the EU concepts of renewable CE initiatives and the principles behind the EU policy towards citizens and energy communities, will be confronted with four general observations.

Community initiatives seeking to produce, distribute and consume energy locally are not a new phenomenon. For example, rural electrification cooperatives have existed in a number of remote areas within the former German Reich in the first half of the twentieth century (Yildiz et al., 2015) and in the United States (Yadoo & Cruickshank, 2010). Since the 1980s, community-owned renewable energy projects have increased in number considerably, in particular wind energy projects. Although the first known wind turbine producing electricity was already erected in 1887, it was only at the beginning of the 1980s that the first wind energy initiatives in continental Europe (e.g., Netherlands, Denmark) started. At first, the initiatives involved university researchers, and were soon followed by initiatives of environmental groups and citizens starting up so-called wind cooperatives (Hufen & Koppenjan, 2015). This is considered the start of the CE movement of active citizens in the way it is currently acknowledged.

More recently, renewable energy community (REC) initiatives have emerged. This has been extensively documented and discussed in the academic literature (Arentsen & Bellekom, 2014; Hoffman & High-Pippert, 2010; Hufen & Koppenjan, 2015; Oteman et al., 2014, 2017; Seyfang

& Haxeltine, 2012, Seyfang et al., 2014; Soeiro & Dias, 2019). What gets much attention here is that these energy initiatives not only consist of citizens who jointly seek to produce and consume sustainable energy locally, but that these citizens and initiatives typically reject the use of centralized-produced fossil and nuclear energy, and embrace local egalitarian values (Hoppe et al., 2015; Oteman et al., 2014). Therefore, these initiatives are not only instrumental in contributing to sustainable energy transition goals in producing renewable energy, lowering carbon emissions and involving citizens. RECs also have more normative functions for citizens and their energy communities than merely producing renewable energy collectively. There are specific reasons for their existence, linked with objections against current practices in current energy markets, and more generally the fossil fuel and nuclear centralized energy system model. In the European Union, there is great diversity in the number of REC initiatives per country. The numbers differ according to the definitions used. In 2021 the European federation for renewable energy cooperatives (Rescoop.eu or Rescoop Europe) had a growing network of over 1900 members, i.e., local energy cooperatives (Rescoop.eu, 2021). Rescoop.eu federation members have signed the Rescoop.eu Charter, based on the cooperative definition (see Sect. 1.3). Given the differences in definitions of RECs it is arbitrary to give numbers of initiatives per country. Overviews have been constructed based on national official registries of energy cooperatives (Wierling et al., 2018) or through a combination of official registries and literatures (Hewitt et al., 2019). Membership registrations and registries might seem a more objective source, but still the question arises what REC actually means and how it is perceived. For instance, are Polish energy ‘clusters’ actually community initiatives, given the fact that they are often only established by either local authorities or private sector commercial initiatives (see Chap. 3)?

Another, maybe even more arbitrary perspective is to think in terms of clusters or groups of countries as front-runners, late starters or as a middle group. This in analogy to how the implementation of LA21 as Chapter 28 of the Rio Agenda 21 in Europe was categorized in the 1990s (Lafferty & Coenen, 2001). Positions in the different groups might change over time. In 2014, the European front-runners in CE were clearly Germany, Denmark and Austria (Oteman et al., 2014). On the basis of the

overview articles and additional sources countries like Italy (17) (Candelise & Ruggieri, 2020; Candelise and Ruggieri Chap. 5 in this volume) and Spain (19) (Unión Renovables Coop, 2021) and Poland (Hewitt et al., 2019) with around 20–30 initiatives in the late starters group can be identified. Next, there is the middle group of countries with more than one hundred initiatives like Sweden with 112 (Kooij et al., 2018), the Netherlands with 623 initiatives (Schwencke, 2021) and the UK with over 300 in England and Wales (Community Energy England, 2020) and particular Scotland leading with 416 initiatives (Community Energy Scotland, 2021). Front-runners would be countries with around 1000 initiatives like Denmark (1109) and Germany (965); entries in the database by Wierling et al., (2018). Comparatively, the Netherlands has been catching up with the front-running countries. Belgium and France are difficult to position in between other countries, comparatively, because the CE uses another organizational model. By 2021, Belgium (Hitchins et al., 2020; Bauwens, 2016) had only around thirty initiatives and France just over seventy (Hewitt et al., 2019). However, in both countries the energy cooperatives have high membership rates (i.e., Ecopower, Belgium: over 50,000; Enercoop, France: 42,000) (Hoppe & Coenen, 2016).

In the Netherlands, the 623 local energy initiatives comprise nearly 100,000 participants (Schwencke, 2021). Therefore, the number of initiatives per country alone does not say everything about the significance of community energy. In 2021, Rescoop.eu, as a federation representing the community energy movement, accounted for over 1900 cooperatives across Europe, which included membership of over 1,250,000 citizens (rescoop.eu/network, 2021). Given the specific membership requirements REScoop.eu uses, some countries are over-represented. Another way to look at significance would be the type of renewable energy of the initiatives and the total share of the renewable energy they produce. For instance, in the Netherlands the initiatives generate 1.6 per cent of the total amount of solar energy and 5.7 per cent of wind energy (Schwencke, 2021). Another perspective is the growth of the significance. Again, the Netherlands as an example, shows a doubling within four years with an increase from 332 and 50,000 respectively in 2016 (Schwencke, 2017) to 623 and nearly 100,000 participants in 2020 (Schwencke, 2021). Finally, the growing importance of RECs—besides increased numbers of

cooperatives and their membership numbers—can also be indicated by increased ownership numbers of renewable energy plants. In Denmark a large share of the wind projects is actually owned by the public (Gorroño-Albizu et al., 2019). In the Netherlands the Danish community ownership model of wind parks was recently adopted following effective lobbying by the renewable energy community branch organization. 50 per cent local ownership was agreed upon in the national ‘Climate Agreement’ (the nation’s metagovernance approach to climate mitigation) to foster local ownership of solar and wind energy parks (Schwencke, 2021).

Between 2010 and 2020 the growth of renewable energy communities has gone hand in hand with increasing academic interest, research and publications from different academic perspectives and research agendas. Typical research themes include the difference in the organizational model of renewable energy communities (Creamer et al., 2019), the motives of their members (Dóci & Vasileiadou, 2015; Bauwens, 2016) or, barriers for starting initiatives (Boon & Dieperink, 2014). Furthermore, there is the supportive role of local government vis-à-vis renewable energy communities (Hoppe et al., 2015), the support structure of initiatives (Warbroek et al., 2018) and specific economic or fiscal policy instruments to support renewable energy communities (Kooij et al., 2018). In addition, there is the relation with social innovation (Hewitt et al., 2019), with social capital (Bauwens & Defourny, 2017), social entrepreneurship (Becker et al., 2017; van der Horst, 2008), and the importance of policy support to community energy initiatives for the energy transition (Wierling et al., 2018). In particular, this last aspect gives a direct link with EU directives, in which renewable energy community initiatives form the core of energy transition policy. In the next sections the EU policy initiatives and new directives will be introduced and discussed. There is also a growing academic interest in the CEP and the EU directives; their characteristics, how they were established, implications and implementation aspects (Roberts, 2020; Cobutt, 2021). This volume contributes to the body of literature on CE.

1.2 Four Observations

This volume starts from four observations of developments in community energy. The first observation is that community energy is getting a more instrumental function in the energy transition. The EU is now taking a leading role in community-owned energy projects since this has emerged as common practice in some EU Member States, but certainly not in all countries. The future scenario that the EU would like to see enrolled and implemented across all of its Member States is that community energy and energy active citizens are key for the energy transition in all EU Member States, regardless if they are front-runners or relative late starters in prioritizing community energy. This is not about sheer numbers of initiatives or the share of community energy in renewable energy production, but about the potential of community energy for the EU energy transition. This view on the importance of energy communities and consumer (co-)ownership in renewable energy production as essential for the overall success of the energy transition gives community energy a more instrumental function. This does not draw the attention away from the fact that there are also many normative societal reasons to stimulate community energy, like views on energy democracy, energy and climate awareness, active citizenship or community empowerment (Van Veelen & van der Horst, 2018).

A growing number of scholars argue that local energy communities are increasingly important players in sustainable energy generation and energy saving efforts (Bauwens, 2016; Bauwens et al., 2016; Dóci et al., 2015; Seyfang et al., 2014; Soeiro & Dias, 2019). Moreover, the EU policy initiative came about thanks to front-running CE initiatives lobbying themselves (Roberts, 2020), using instrumental and normative arguments to address importance of community energy.

RECs are not only instrumental in terms as being merely a means to achieve sustainable energy transition goals (e.g., contributing to lowering of carbon emissions). They also have a more normative function for the citizens within these initiatives. These normative reasons are linked with objections against the ways existing energy markets operate, and in particular to large-scale (fossil fuel) energy systems. Rather than

profit-seeking firms, RECs are embedded in local structures that have certain collective values, and their resources entail voluntary input, grant funding and reciprocal relations. Nor do they seek profit maximization (Warbroek & Hoppe, 2017). There are also specific anti-elitist reasons for the start-up of these initiatives, like dissatisfaction with the government and a dissent with big players in the energy industry (Bauwens, 2016; Hoppe et al., 2019). In addition, certain societal or altruistic motives apply like ecological motives or the liveability in the region or seeing the community energy movement as part of regional social capital (Bauwens & Defourny, 2017). Other motives are instrumental for the participants themselves, like wanting to be self-sufficient, economic motives or seeking civic and social gratification.

A second observation is that there is a clear difference in the starting situation between front-runners and late starters, both between countries and between initiatives themselves. Late starters do not have to “reinvent the wheel”: there is learning and access to information. However, whether countries can be seen as relative starters or front-runners, they all face the same directives. Bauwens, Gotchev and Holstenkamp (2016) discern several important factors which are intended to clarify the disparities between EU countries, such as formal institutional rules, the support mechanisms for renewable energy (RE) and spatial planning, attitudes toward the cooperative model and the cultures of local energy activism. These factors that influenced the emergence of CE initiatives in countries are still important for the differences between the European countries, but get another meaning in the light of the new EU policy. If all EU countries face the same directives, what would the new EU policy mean for countries that are late starters in the CE movement? Here, a growing attention in for example Southern European countries for community energy is observed (Rescoop.eu, 2021), but the EU policy initiative is not the only explanatory variable for this growing attention in these late-starting countries. On the other hand, front-runners who are confronted with the new directives may face the “Law of the inhibitory lead”, where having a head start might be considered a handicap. And how does this play out for renewable energy community initiatives’ members that started from idealistic motives, and are now joined by new members, i.e., people with different motives (Bauwens, 2016). A crucial factor that determines the difference

in starting situations of REC initiatives is the role of government (Oteman et al., 2014; Hoppe et al., 2015; Warbroek & Hoppe, 2017) and its promotion, empowerment (or hindrance) of CE. Government on different scales can enable initiatives by facilitating, coordinating and encouraging action through financial incentives, public–private/voluntary partnerships, shaping policy goals in partnership and providing infrastructure.

A third observation is the broadening of the goals of the CE movement and the explicit recognition that CE is not just about jointly producing renewable energy. This is particularly important in light of raising awareness and attracting public support for low-carbon energy and energy saving (Warbroek & Hoppe, 2017). REScoop.eu, defines renewable energy cooperatives as, “groups of citizens who organize themselves to collectively take action to foster the use of renewable energy and increase energy efficiency standards” (REScoop.eu, 2016). In their quest to increase energy efficiency standards they engage in activities like persuading their members to conserve energy (e.g., Coenen et al., 2017; Hoppe et al., 2016; Oteman et al., 2014; Van der Schoor & Scholtens, 2015; Hoppe et al., 2019). Apart from energy demand, CE initiatives are also active in other activities like promoting smart grid experimentation, or starting EV car sharing business models (see Chap. 8 of this volume).

A fourth observation concerns a mismatch between academic attention and the significance of RECs in certain countries. A high share of scholarly literature on community energy and local energy initiatives focused on practices in the United Kingdom (Van der Schoor & Scholtens, 2021), which is home to comparatively few energy cooperatives—yet still has over 300 organizations (Community Energy England, 2020, p. 3)—when compared to other European countries. Countries in continental Europe with relatively high numbers of renewable energy communities like Germany, the Netherlands and particular Denmark received relatively less attention. In addition, a lack of literature is observed on some of the late-starting countries. Therefore, continental Europe serves as the locus of the research presented in the present volume. Next to attention to front-running countries specific attention is also given to some of the late starters.

These four observations form the structural basis of this volume. This entails: (1) a focus on a more instrumental function of CE in light of the EU sustainable energy transition; (2) differences between front-runners and late starters in a starting position who are faced with the revised EU Directives; (3) the broadening of goals and activities of RECs, and; (4) the mismatch between scholarly attention and significance of the CE movement in countries, to formulate four sub-questions. Before presenting the main research question, first EU policy initiatives are addressed and then EU policy initiatives are confronted with the four central observations that are central to this volume.

1.3 Towards Community Energy Projects as Common EU Practice

On 14 June 2018 the European Parliament and the Council finally reached a political agreement on rules addressing how the EU will roll out renewable energy over the next decade. The EU decided on a binding objective of increasing renewables by 32 per cent to be achieved in 2030, with the possibility to review the target in 2023 in order to revise it upward. This presents an unprecedented development as the revised EU Renewables Directive (2009/28/EC) provides explicit and well-defined roles for citizens and communities. The EU discerns renewable energy communities (RECs) from citizen energy communities (CECs).

Article 2 of the Renewables Directive provides a definition of renewable energy communities. ‘Renewable energy community’ means a legal entity:

- which, in accordance with the applicable national law, is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects owned and developed by that legal entity;

- has for its primary purpose to provide environmental, economic or social community benefits to its members or shareholders or to the local areas where it operates rather than to generate financial profits; and
- may engage in electricity generation, distribution and supply, consumption, aggregation, storage or energy efficiency services, generation of renewable electricity, charging services for electric vehicles or provide other energy services to its shareholders or members.”

The definition of ‘Citizen energy communities’ (Article 2 of the Electricity Directive) uses a similar definition. The second and third bulleted issues are the same in as the Renewable Energy Directive. The first issue holds that the autonomy principle is absent when compared to the definition of RECs.

By making this agreement, the EU has created a landmark of citizen empowerment in the face of low carbon energy transition. More specifically the agreement enables and empowers renewable energy cooperatives (REScoops), which are advocating low carbon community energy, prosumerism and energy democracy. The agreement can be seen as a milestone for these civil society organization who have been fighting for more and legalized empowerment for decades. This was coined by the President of REScoop.eu, Mr. Dirk Vansintjan who stated, “This is a remarkable day for European energy citizens. Up until yesterday they had no recognition in Europe’s energy policy. Now, they have a set of tools to empower themselves and their communities so that they can prosper in the energy transition.” (REScoop.eu, 2018).

The next question would be: what is changing for renewable energy communities with the revised Directives? Among others, it contains definitions of ‘renewable energy communities’ and ‘self-consumption’. Next to setting strong definitions the Directive provides rights and a basis for EU Member States to develop national legislation and regulatory frameworks to acknowledge, govern and support renewable energy communities and self-consumers (i.e., ‘prosumers’). This includes taking into account RECs in national renewable energy support schemes, improved collaboration between the latter and local authorities, and supporting and strengthening the role of RECs in helping (socio-economic) vulnerable customers and alleviation of poverty. In addition, the revised

Renewables Directive also contains rules to exempt ‘prosuming’ households who do not feed their excess supply of electricity into the grid, from (conventional) grid charges (*ibid.*).

Against the background of the general objectives of keeping the EU a global leader in renewables and, more broadly, helping the EU to meet its emissions reduction commitments under the Paris Agreement (COP21), a new and extended role of citizens and renewable energy communities play an instrumental role in achieving these objectives. In relation to our first observation of the shift from a more normative perspective of the role of citizens and renewable energy communities in the energy transition to a more instrumental role, elements of this instrumental function are that energy communities:

- will help to pave the way for a clean energy transition, while moving citizens to the fore because they organize collective and citizen-driven energy actions;
- will contribute to increase of public acceptance of renewable energy projects;
- will make it easier to attract private investment in the clean energy transition;
- have the potential to provide direct benefits to citizens by advancing energy efficiency and lowering their electricity bills;
- can help in providing flexibility to the electricity system through demand–response and storage by supporting citizen participation.

Formulated in this way energy communities are instrumental for the energy transition. However, in the definition of renewable energy communities one also recognizes more normative elements based on open and voluntary participation, autonomously and effectively controlled by local shareholders or members and providing environmental, economic or social community benefits to its members or shareholders or to the local areas where it operates rather than to generate financial profits.

Here, one clearly recognizes the ideas of the cooperative movement and the definition of the cooperative organization. The International Co-operative Alliance (ICA) defines a cooperative as, “an autonomous association of persons united voluntarily to meet their common

economic, social, and cultural needs and aspirations through a jointly owned and democratically-controlled enterprise” (ICA, 2017). Seven cooperative principles are used as guidelines by which cooperatives put their values into practice: (i) voluntary and open membership; (ii) democratic member control; (iii) economic participation of members; (iv) autonomy and independence; (v) education, training and information; (vi) cooperation among cooperatives, and (vii) concern for the community (*ibid.*). According to the ICA, cooperatives are based on the values of self-help, self-responsibility, democracy, equality, equity and solidarity. In the tradition of their founders, cooperative members believe in the ethical values of honesty, openness, social responsibility and caring for others. These principles also apply to renewable energy community organizations. For example, all federation members of Rescoop.eu have to sign the Rescoop.eu Charter, which is based on the cooperative definition, related to its core values and the seven principles of the ICA. The Rescoop.eu Charter added its own ecological principles to the ICA principles and values, that stress the need to protect the environment and social, and ethical principles that highlight the importance to support local economy and prosumers, to ensure financial transparency, to restrict the exclusive pursuit of financial profit, to encourage fair trade and to get access to common goods (Rescoop.eu, 2013).

When reflecting on our second observation there is a clear difference in the starting situation between front-running and late-starting countries. The Clean Energy Package and in particular the revised EU Renewables Directive (2009/28/EC) also asks for some steps from national governments to support the development of community energy and strengthens the role of the citizens in the energy transition. Under the Regulation on the Governance of the Energy Union and Climate Action (EU) 2018/1999, EU countries were required to draft national energy and climate plans (NECPs) for 2021–2030, outlining how they will meet the new 2030 targets for renewable energy and for energy efficiency. Most of the other elements in the new directive had to be transposed into national law by Member States by 30 June 2021, when the original renewables directive would be repealed.

When regarding the third observation—i.e., observing a broadening of the goals of the community energy movement between 2011 and

2020—this is clearly reflected in the third sub-paragraph of Article 2 of the RED II Directive that addressed goals other than renewable energy production-related activities like energy efficiency services and charging services for electric vehicles. This third paragraph of Article 2 means an explicit recognition that community energy is not just about jointly producing renewable energy, it also provides the legal legitimacy to renewable energy communities for broadening their activities. The transition towards a low-carbon economy is not just about a growing role for RE sources, but also about greater energy efficiency and the electrification of transport and other sectors. For prosumers, next to producing electricity for self-consumption and feeding excess energy into the grid, more attention to energy efficiency stresses the role of consumers as different in managing their demand actively. Both prosumers and renewable energy communities can play a role in influencing their memberships (Hoppe et al., 2019; Horstink et al., 2021).

1.4 Renewable Energy Community Initiatives in the Light of the Revised Renewables Directive

The central research question in this volume is: *How did renewable energy communities in continental Europe evolve, and what can be learned from these experiences for the realization and implementation of the Clean Energy Package?* Our four sub-questions relate to the previous four observations in Sect. 1.1 and elaboration of these observations based on the EU directives.

Based on our first observation the first sub-question is: *What does the general trend of a greater focus on a more instrumental function of community energy for the EU energy transition mean for the other more normative functions of renewable energy cooperatives?* For instance, does it influence the value and principles of their cooperative identity? Does a growing significance of the CE movement replace their idealistic motives with pragmatism?

Based on the second observation that there are clear differences between front-running and late-starting countries in their starting position but they are faced with the same directive, the second sub-question is: *What does the new EU policy mean for countries that are late starters or front-runners in the community energy movement?* Attention is paid to how renewable energy communities fared in the period in which previous EU Directives were issued and implemented, through transposing the EU directives in national legislation by EU Member States. This is done by presenting cases from different EU countries. Finally, the ways in which the revised Renewable Energy Directive would enable RECs in selected EU countries that were presented previously, and in which ways this contributes to these initiatives attaining their own goals, and to low carbon energy transition in Europe in general are explored. Besides mentioning support structures, the challenges that the implementation process of the revised Renewables Directive to national legislation might encounter, which might obstruct implementation in support of renewable energy communities are highlighted.

The third observation about the broadening of goals and activities of renewable energy communities over the years brings us to the third sub-question: *What does the broadening of their goals and activities mean for renewable energy communities and what role does the revised Directive play?* In the discussion about paragraph 3 of Article 2 of the Revised Renewable Energy Directive we suggested that this third paragraph means an explicit recognition that community energy is not just about jointly producing renewable energy and gives a legitimacy for renewable energy communities to broaden their activities. However, is this actual the case in the different countries? To give citizens and RECs a fair level playing field, electricity markets, regulations and technical infrastructures need to be adapted. Markets, regulations and technical infrastructure at this moment are still highly intertwined with incumbent regime players like large utilities and large-sized energy companies that dominate domestic and regional energy markets. It is not just the redesign of markets that is needed to encourage citizen to invest in RE. Additional, new regulations are required if the RECs' goals are to be broadened; for instance national regulation on charging services for RECs and their members, the (maintained) use of feed-in tariffs, or subsidies or tax measures that support renewable energy

communities developing and exploiting collective RE projects. Other activities also request new and additional business models that RECs can use. Both in prosumerism and energy savings, RECs can play a role, while at the same time keeping costs for their members under control (Hoppe et al., 2019). Important mechanisms are trust in their own RECs and social norm-setting among their members (Coenen et al., 2017).

Finally, based on the fourth observation that there is a mismatch between academic attention and significance of the community energy movement in countries, a fourth sub-question is formulated: *Whether more explicit attention to continental Europe and particular late-starting countries will bring new insights?* For instance, are the barriers for successful RECs the same for countries that received less attention thus far in the academic literature? In this volume, attention is paid to the history and development of the REC movement in continental Europe: their vision and beliefs, ways of operating and in particular, the challenges and barriers they encounter. The latter pertains to RECs' involvement in energy markets where they are confronted with existing regimes, incumbent actors, structures and regulatory frameworks. With regard to countries with a low degree of REC action, or countries where the development of RECs is relatively slow like in Southern-European countries. Because these countries are less researched in the academic literature, do they present a different picture? Furthermore, possible explanations for differences between front-runners and late-starting counties are compared with the previously formulated explanations on RECs disseminating across EU Members State countries (Bauwens et al., 2016).

1.5 Contour of the Volume

The contributors to this volume are all researchers in the field of community energy. The chapters they provide in a loose sense represent over six EU countries (Germany, Greece, Italy, Finland, Poland and some of the Baltic States, and Netherlands). Seven countries are part of the country case study chapters. In total, the book contains information from eleven countries in continental Europe.

Chapter 2 by Joshua Roberts discusses what energy communities are in the Clean Energy Package and what changes it brings to the world of EC. The next four chapters address specific countries or groups of countries. Chapter 3 by Salvatore Ruggiero and his colleagues describes the uptake of CE initiatives in four Baltic Sea region countries. (Estonia, Latvia, Lithuania and Poland). Chapter 4 by Nikolaos Ziozas and Theocharis Tsoutsos discusses REC initiatives in Greece using a Strategic Niche Management framework perspective. Chapter 5 by Chiara Candelise and Gianluca Ruggieri addresses the question how RECs in Italy evolved, and discusses recent experiences with the implementation of the Clean Energy Package in Italy. Chapter 6 by Lars Holstenkamp traces the development of CE in one of the front-running countries—Germany—from the early beginning as rural electrification cooperatives at the end of the nineteenth century to more recent developments. Chapters 7, 8, 9 and 10 address a number of more thematic issues around REC. In Chap. 7 Beau Warbroek addresses the importance of intermediaries and institutional support structures to empower RECs. This is based on an empirical study in the Fryslân region in the Netherlands. In Chap. 8 Frans Coenen and Thomas Hoppe address ECs seeking to get their members involved in energy-saving behaviors. The study presents survey results from five continental European countries (Spain, Italy, Denmark, Belgium and France). In Chap. 9 Mariëlle Feenstra and Florian Hanke take an inclusive CE perspective, focussing on gender in the CE movement. In Chap. 10, Lidewij Tummers discusses co-housing projects as a special form of CE, where theoretical approaches and empirical practices are useful to RECs and may expand their portfolios. Chapters 9 and 10 address the emerging attention to inclusiveness as a value in the community energy movement, and the energy transitions challenge at large. In the final chapter, the editors conclude the volume by answering the research questions, reflecting on the academic contributions, and more specifically discussing the four general observations made in the present chapter. Finally, suggestions for future research are presented.

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