



11

Conclusion

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11.1 Introduction

In this volume, the key questions were: how renewable energy communities in continental Europe have evolved, and what can be learned from these experiences for the realisation and implementation of the Clean Energy Package? In the previous chapters of this volume authors have addressed these questions in one way or another.

The Clean Energy for All Europeans Legislative Package (CEP) was concluded by the European Union institutions in May 2019. The CEP

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concerns a legal framework that will help the EU to meet its 2030 climate mitigation and clean energy policy goals. As Roberts explained in Chap. 2 with this legislative package, the EU signalled a strong shift in the role of citizens from passive consumers to active participants in energy transitions. This marked the first time that EU legislation acknowledged the role community energy ownership can have to help the EU meet its climate and energy goals while driving local social innovation at the same time. In particular, the recast Directive 2018/2001 (Renewable Energy Directive II, or REDII), the recast Directive 2019/944 (the Internal Electricity Market Directive, or IEMD) and the recast Regulation 2019/943 (the Internal Electricity Market Regulation, or IEMR) contain provisions that establish a supportive EU legal framework for community ownership. Other EU actions follow the same idea of giving citizens a more central position in the energy transition. This particularly holds for the EU Strategy for Energy System Integration (2020) and for elements from the European Green Deal package.

The four sub-questions central to this volume relate to a number of observations that are discussed in the Introduction chapter of this volume. All chapters following the Introduction chapter either focus on the developments around renewable energy communities in a certain country, like Greece, Poland, Estonia, Latvia, Lithuania, Estonia, Italy, Germany and the Netherlands, or alternatively address a certain aspect of the energy community's strategy, involvement or actions and relevant underlying ideas. There is also attention to countries that until recently received hardly any or no attention in the community energy literature. These include Italy, Greece, Poland and the Baltic states of Estonia, Latvia and Lithuania. The set of countries presented in this volume is however by no means representative for regional clusters of countries, but they are either part of the front-runner group of countries, namely the Netherlands and Germany, or part of the late-starters group, namely Southern and Eastern European countries.

The CEP defines two new concepts labelled 'renewable energy communities' (RECs) and 'citizen energy communities' (CECs). It also requires Member States to secure certain rights of energy communities and establish enabling frameworks to ensure a level playing field and promote their development. EU Member States were requested to

implement REDII provisions into national legislation by 30 June 2021, and the IEMD provisions by 31 December 2020, to ensure that they are consistent with the new EU legislation.

In this conclusion chapter, we refer to Renewable Energy Communities, as RECs. For the sake of clarity, REC and CEC are not mentioned separately. What holds for RECs in practice often also holds for CECs.

11.2 Instrumental Functions of Community Energy

In general, non-profit and voluntary organizations can serve an instrumental purpose in meeting society's needs. This is what many founders of community energy initiatives had in mind when they started their initiatives. Over the last thirty years, their idealistic aim was in the first place to contribute to combating climate change by producing renewable energy. However, in many cases this was not the only goal as they also pursued other value-oriented goals, not all of them addressing the ecological dimension of sustainable development. Other goals pertained to showing anti-government, anti-centralist, multinationals-led energy markets, or anti-nuclear energy motives (Hess, 2018). This can be seen as a critical civic response to centralist, capitalist, and eventually developments that are considered harmful to the environment and have restricted the autonomy of local and regional communities (Smith et al., 2016; Hewitt et al., 2019).

In some sense, this can also be seen as a response to the ways in which the energy liberalisation across EU Member States failed to effectively address the greening of energy systems by giving market players more influence. It also neglected the interests of citizens and local communities and paid attention to other values rather than limiting energy market monopolies and assuring low, affordable energy pricing. More in general, civic response to perceived market and state induced abuses is typical for the way social innovations develop. This particularly holds for community energy (Hewitt et al., 2019).

Moreover, the community energy movement can also be seen as having a political side, seeking to regain more decentralised power into governing and organizing energy supply chains, and taking decision-making power away from centralist incumbent players, in particular national governments and the so-called ‘energy giants’ (i.e., the incumbent energy companies that form oligopolies in domestic energy markets). Some energy communities even go so far that they desire to establish local autarkic self-sufficient energy systems that operate fully independent from national and regional energy system (e.g., ‘Klimakommüne Saerbeck’; Hoppe et al., 2015). More in general, it can be observed that the community energy movement seeks to achieve a more polycentric model of energy supply systems (Bauwens, 2017) as an alternative to the centralist, monocentric model in which energy markets have been organised over the last century, although the liberalisation to a certain extent can be seen as another—yet less far-reaching—way to establish more polycentric energy supply systems.

Previously, dating as far back as the end of the nineteenth century as reported by Candelise and Ruggieri in Chap. 5 of this volume, energy communities in the form of cooperatives started to provide rural areas with electricity due to a lack of national grids and a lack of prioritisation of these rural areas. The same happened in Germany as described by Holstenkamp in Chap. 6. Internationally this was also observed in countries like the US (Yadoo & Cruickshank, 2010). The instrumental purpose in meeting society’s needs here contributed to the rural economy and increasing rural welfare. Access to electricity is crucial in rural development all around the world (World Bank, 2017). Access to affordable and clean energy is not only a key element of the Sustainable Development Goals (SDG7) but also of the social equality of women in energy transition as discussed by Feenstra and Hanke in Chap. 9.

The CEP stresses how important the contribution of individual citizens and citizen’s community initiatives are in relation to the issue of sustainable energy transitions. Feenstra and Hanke (see Chap. 10) argue that in addition this should also be a socially inclusive energy transition. More recently, a leading role for citizens is observed in drawing attention for climate change and addressing power structures through (social) media and direct action by civic action groups like Extinction Rebellion

(Westwell & Bunting, 2020). On the other hand, citizens are also observed to oppose energy transitions, its costs and consequences for the economy and individuals (with increased tax rates and the introduction of transport levies which for instance sparked the yellow jackets' civic resistance movement in France; Jetten et al., 2020). Moreover, in particular this addresses public acceptance of the siting of renewable energy projects (Devine-Wright et al., 2017; Wüstenhagen et al., 2007; Lennon et al., 2019). Some fear that renewable energy, although sustainable, is no longer secure nor affordable. Feenstra and Hanke (see Chap. 10) place this in context of the awareness of RECs of energy poverty and gender inequality. Others fear that the present energy market and competition will not lead to sufficient amounts of renewable energy becoming available (Paravantis & Kontoulis, 2020). Some even vie for an increased share of nuclear power into the energy mix, framing it as a clean low carbon technology.

Mobilising and getting citizens involved in sustainable energy transitions for the sake of progressing the latter can be perceived as taking a fairly reductionist instrumental perspective (Wittmayer et al., 2020). From a normative perspective community involvement and more particularly community energy action is considered as positive to citizens themselves, taking a citizen empowerment or from a democratic values perspective (i.e., pertaining to energy democracy goals) (Van Veelen & van der Horst, 2018). It is instrumental because it contributes to facilitating the processes and action towards achieving goals that are related to sustainable energy transitions. Although democratic values are still important the Clean Energy Package also highlights the aspect of distributional benefits that come along with energy transitions. These so-called 'co-benefits' for citizens and (local) communities are instrumental because they might spark citizens into making investments, which in turn may unlock private capital for renewable energy production investments. However, one also has to realise that citizen investments can be made from a personal gain perspective and not only deriving from idealistic, ecological-collectivist motives. Individual citizens might even view solar energy as a better investment than investing in most shares on the stock exchange. Their contribution to climate change is for them just a side effect or sub-goal. In the Ecopower case Bauwens (2016) showed that

new cohorts of people joining REScoops are less idealistically motivated than the ones that started these initiatives.

In Chap. 1 of this volume four observations of general developments in community energy were discussed. The first observation made pertained to the increase of importance of the instrumental function of citizens' involvement in energy transitions. Based on this observation, the following sub-question was formulated, *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?* This led to the underlying issue addressing whether citizens' involvement in sustainable energy transitions actually contributes to reaching energy transition's goals. In Chap. 10 Tummers shows the possibility of citizens' communities contributing to a stronger energy performance in housing than traditional housing projects. In Chap. 8 Hoppe and Coenen show the potential contribution of energy communities to energy savings by their members based on community membership and actions, social norm-setting, knowledge provision, as well as personal beliefs and attitude. In Chap. 2 Roberts addresses the requirement that RECs focus on providing economic, environmental or social benefits. Although issues like these seem to be addressed in the CEP with the aim to have them implemented into national legislation it appears that they are not clearly operationalised. In general, most attention on benefits concerns environmental benefits of RECs through increased production of locally produced renewable energy and greenhouse gas emission reductions.

The question can be raised whether *the tendency towards an instrumental perspective of community energy can influence the value and principles of its cooperative identity?* The requirement that RECs focus on providing economic, environmental or social benefits also includes typical benefits that can be perceived as previously mentioned, as "a more normative function of RECs". For example, an important part of the social benefits to RECs concerns their promotion of energy democracy, citizen empowerment and rising the general awareness on climate issues of citizens and REC members. This last point was explicitly addressed in Chap. 8 by Coenen and Hoppe on RECs encouraging their members to engage in energy-saving actions. In Chap. 2, Roberts shows that the revised

EU directive contains many requirements for EU Members States to implement into national (and sub-national) legislation to empower and protect the ways in which RECs are functioning; in the first place because the legal identity in which RECs must be organised around specific ownership and governance principles, having non-commercial purposes. In addition, specific requirements are in place to check that these basic principles are upheld, and prevent RECs from becoming public utilities or private energy companies under disguise.

However, there is a potential tension between the original idealistic motives of saving energy and producing renewables, and becoming serious players in energy markets. A call for scaling and the professionalisation of RECs due to market requirements leads to staff professionalisation and development of new, more professional business models, and potentially a larger distance to the community, despite the fact that there are certain specific requirements in RED II in place to facilitate the market position for RECs without losing the REC identity in terms of citizens ownership, democratic control, local autonomy and having non-commercial purposes.

A growing involvement is observed of other actors than citizens in community energy. Of course, local governments and other intermediaries have traditionally been involved and have supported community initiatives (see also Chap. 7 by Warbroek). In addition, many municipalities, profit and non-profit organisations (Caramizaru & Uihlein, 2020; Warbroek & Hoppe, 2017; Hufen & Koppenjan, 2015) have actually started community energy initiatives themselves (see the next paragraph). The definition of shareholders or members that are located in the proximity of the renewable energy projects owned and developed by renewable energy communities as legal entity opens membership of RECs to others than just citizens and citizen groups. Therefore, some authors might want to reduce community energy to just citizen's initiatives as for example presented in Chap. 3 by Ruggiero et al. This might spur a discussion on what a community exactly entails and what role geographical proximity plays in the idea of community. The main argument from the EU for geographical proximity criteria for members and stakeholders is the substantial added value in generating local acceptance of renewable energy projects. Some REScoops are (national) umbrella organisations with local

groups or members. Or they are local groups scaling and spreading to other places as described by Candelise and Ruggieri in Chap. 5. In response to the implementation of RED II it may be expected that these broadly oriented and large-sized REScoops will be subdivided into smaller organisations or local groups that meet the proximity criteria of art. 2 of RED II.

When reflecting on the trend towards this functionality perspective on RECs it is important to address who started RECs as a social initiative in the first place. In Chap. 3 Ruggiero *cs.* mention that in Poland the driving force behind the establishment of energy clusters are local authorities and business companies with a low level of citizen engagement. In Chap. 5 Candelise and Ruggieri discuss to which extent REC initiatives in Italy have been proposed and developed by citizens or other types of grassroots organisations (bottom-up), or instead by a municipality that defines the project and the forms of citizens' involvement; it turns out that the majority of the Italian initiatives have been initiated using a top-down structure, with five of the REC initiatives having been proposed by local government, and the other seven by a (semi-)commercial actor (i.e., either a company or a municipal utility). Only five REC initiatives were actually initiated via a bottom-up approach by either a group of citizens or a green NGOs. In Chap. 4 (by Ziozas and Tsoutsos), in Greece the two REC cases from the 1980s and 1990s were initiated respectively by a power company and a municipality. The three newer Greek REC cases pertain to two citizen-led energy initiatives and one by an intermediary actor dedicated to the development of local energy projects.

Does a strong involvement of municipalities and particular private actors mean that RECs become less idealistic local community initiatives? Here the autonomous and effectively controlled criteria as explained by Roberts in Chap. 2 are important. The REC definition states that it must be "*effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity.*" As explained by Roberts, proximity should be generally understood as the geographical scope in which the members or shareholders that effectively control the REC should be located (in other words: reside). Here, geographical proximity is emphasized. Some countries like Belgium or the Netherlands have national organizations or

federations that function as a kind of umbrella organisation or branch organisation for RECs. The question in these cases is at which organisational level crucial decisions are taken and criteria set. Membership democracy in such an organisation would imply indirect democracy.

The REC definition explicitly mentions the proximity criteria and benefits criteria. In Chap. 2 Roberts explains the primary purpose of REC to provide environmental, economic or social community benefits to its members or shareholders or to the local areas where it operates rather than to generating financial profits. This restricts real renewable community initiative to not-for-profit and community initiatives.

Another way that RECs keep their more idealistic and normative principles is by ensuring that a specific category of members (e.g., natural persons or local authorities) are included in energy communities. Keeping citizens as natural persons in the lead in these initiatives follows from what we called the normative idea in the energy community concepts aiming at empowering citizens to participate and take ownership. In Chap. 9 Feenstra and Hanke advocate a special position for women to be able to engage in RECs on an equal basis.

Implementing such a special position is potentially feasible because in national regulation following RED II it should be ensured that citizens have a minimum level of participation or a decisive influence in the communities that are formed. This minimum level of participation or decisive influence will only lead to the uptake of the more idealistic goals if the members share these goals. The conditions are that individual citizen members, for example, should not view joining an REC as an opportunity to obtain solar energy as just a better investment than investing in stocks. These members are considered to also be interested in actively participating in the activities and strategic decision-making of RECs.

On the other hand, if RECs do not also function as an ideal democracy of motivated energy citizens they can still play an important role in energy transitions. In Chap. 3 Ruggiero *cs.* hold that despite the limitations of the Polish energy cluster model, these clusters can serve as an opportunity for CE groups and become a vehicle for the phase-out of coal in the long-term future. And as Tummers shows in Chap. 10 that although self-managed housing initiatives do not use the original model RECs (or as cooperatives) are be considered as more than a group of

jointly consuming prosumers, for they can also play an important role in showing what is possible in the housing sector when it takes more of a REC, collectivist, ecological, democratic value-oriented approach.

11.3 Different Starting Positions of EU Member States

The second observation discussed in Chap. 1 is that there are clear differences between front-running and late-starting countries in their original position. Nevertheless, they currently face the challenge of implementing with the same directive. As Roberts discussed in Chap. 2, transposing these new EU rules into national legislation is considered as challenging.

The second sub-question based on this observation is: *What does the new EU policy mean for countries that are late-starters or front-runners in the community energy movement?*

Continental Europe by no means presents a homogeneous landscape when one looks at the deployment and development of renewable community communities. In Chap. 1 it was discussed that there are a number of countries that would fall in the category of front-runners. Within this group of countries, this volume gives particular attention to Germany and the Netherlands. Of the relative late-starters within the groups of Southern European countries particular attention was given to Italy and Greece. Within the Eastern European countries particular attention was awarded to Poland and the Baltic States Estonia, Latvia and Lithuania. Eastern European countries are not homogeneous but share a number of characteristics. For the Baltic States, this is Soviet heritage. For Poland and other Eastern European countries, the previous communistic regimes created a different starting position. First, as Ruggiero *cs.* point out in Chap. 3 the repression of an independent civil society by the Soviet regime and previous communistic regimes has led to a situation in which civil and especially collective activism (i.e., mostly in the form of energy cooperatives) is still less developed in Eastern European states than in their Western counterparts (Aidukaiu, 2013). Second, the often-times negative experience of forced collectivisation of farms has created a level

of distrust towards community projects. This might even lead to an aversion of for using words as energy cooperative or community energy. The two other countries in this volume, Italy and Greece, which represent another group of relatively late-starting countries, have a different starting point in this perspective. Cooperatives are a well-known and valued organisational forms in both countries, in particular in agriculture. They also have a tradition in having an independent civil society, which is however relatively weak in REC development in Greece according to Ziozas and Tsoutsos (See Chap. 4). If we compare the two Southern European countries with the Baltic and Eastern European countries, in Italy the first energy communities date back to the end of the nineteenth century and in Greece, there are ‘historical’ cases for the 1980s and 1990s. Bauwens, Gotchev and Holstenkamp (2016) identify several important factors that are intended to clarify the disparities between EU countries, such as formal institutional rules, the support mechanisms for renewable energy production and spatial planning, attitudes toward the cooperative model and the cultures of local energy activism. These factors seem also to have explanatory power for the countries that are less experienced with RECs.

For the Eastern European countries in particular the general lack of civic engagement as essential for starting RECs (Walker & Devine-Wright, 2008; Radtke, 2014) explains their late-start. In comparison in the Southern European countries; this is more specific local renewable energy activism. The other factors, influenced by the communist heritage, are low trust and fairly low levels of social capital as important driving factors for citizens (Walker & McCarthy, 2010). Moreover, characteristic to the Eastern European countries is having a negative attitude towards the cooperative business and legal-organizational model.

For all countries in the group of ‘new’ countries, economy plays a role. The Eastern European countries and the Greek economy are weaker than the economy of the front-running countries. However, more important than the general economy are the consequences for the financial position of individual citizens and the financial position of municipalities. Higher levels of income and education, which are often inter-related, are also a positive influence factor for starting a REC (Radtke, 2014; Magnani & Osti, 2016).

Another contextual factor also mentioned by Ruggiero *cs.* in Chap. 3 is decentralisation of authority and resources to well-functioning sub-national governments. If there is decentralisation but the institutional capacity is limited the influence of decentralisation is reduced. However, the Netherlands is considered as one of the front-running countries with well-functioning local governments that however lack authority, have a low independent tax-income and tend to increasingly start lacking administrative capacity. Chapter 7 by Warboek shows that intermediaries can support the ‘weaker’ municipalities (i.e., small-sized, with low capacity, and with underprivileged socio-economic communities).

In Chap. 4, Ziozas and Tsoutsos explain what they call “*the enormous gap between local communities and RES projects*” as a result of the limited governmental and economic freedom that municipalities and communities experience in Greece due to the centralised State structure. On the other hand, in the United States there is still a considerable number of cases reported (Van der Schoor & Scholtens, 2021) although there is a relative absence of federal energy policies.

The national economy strongly relates to the energy market and particular energy prices. Low fossil fuel-generated energy prices on the national electricity markets can act as a barrier to making REC projects economically viable. This also relates to dominance of incumbent energy companies in the national economy (Proka *et al.*, 2018; Lowes *et al.*, 2020) and the energy sector and the favouring of a certain form of fossil energy for economic and political reasons like the importance of coal in Poland and biomass in Latvia.

Finally, regulation has to be in place. In Chap. 3 Ruggiero *cs.* address the importance of feed-in tariffs, but also costs of grid connection, high interest rates for loans and the government support for receiving loans. In Chap. 3 Warbroek points to the role and strategies of intermediaries in building capacities of RECs, embedding them into the community, alleviating barriers and opening up the system for the uptake, acceptance or breakthrough of RECs. In Chap. 5 Candelise and Ruggieri show how generous feed-in tariffs positively influenced the first wave of RECs in Italy but the disappearance also caused a hold on the growth of RECs. The importance of having feed-in tariffs in place to empower RECs was

also observed in other predominantly North-Western European countries (Wierling et al., 2018).

The transportation of the CEP into national regulation is expected to change many regular and financial conditions in the European countries. However, this volume was published too early to give a clear, and complete answer to the question how countries fared in adopting regulatory frameworks at the national level.

The CEP and the regulations, and regulatory change that follow from it make a clear promise for a number of issues that are essential to the survival and upscaling of RECs. However, some of these issues depend on internal organisational problems RECs have and will not be solved by national regulation (see Chap. 7 by Warbroek) like problems with capacity and knowledge of volunteers, tensions with professionalisation and financing. RECs are not like the other market players due to their principles on participation, ownership and decision-making. This has a number of consequences in the way they operate in the energy market and create and run energy projects. Because their profits do not go to shareholders, but are reinvested in benefits to the community their return on investment is often lower than commercial parties running renewable energy projects. Raising funds and managing to develop or adopt feasible business cases (i.e., solving unprofitable top issues) is also more complicated for energy communities, especially when it comes to risky pre-financing that is necessary, while the continuation of the project is not certain. Moreover, having a fairly 'alternative' (i.e. non-conventional) organizational form does not make it any easier to get funding and obtain sufficient loans from banks. Furthermore, due to their democratic principles decision-making processes are more complex and therefore slower to act than for commercial actors. In addition, the existing problems with working with dedicated volunteers who do not always have the necessary legal expertise in the context of permits or licences is increasingly becoming a problem in opening up energy markets for RECs.

11.4 Broadening of Goals and Activities of Renewable Energy Communities

The third observation made in Chap. 1 concerned the trend of broadening the goals and activities of RECs over the years. The third sub-question is: *What does the broadening of their goals and activities mean for renewable energy communities and what role does the directive play?*

Many examples in this volume are about community-owned wind turbines, solar parks or other solar projects on for instance public buildings and biomass community projects. There are RECs involved in district heating based on biomass or as multi-utility cooperatives jointly producing renewable energy, heat next to power (Coenen & Hoppe, 2018). There is a history of energy cooperatives also producing district heating (Vansintjan, 2015), or as truly embedded systems producing heat and electricity through renewable biomass and combined heat and power (CHP) systems, with a local heat network delivering heat to households (Yildiz et al., 2015). Exceptional are RECs involved in the financing of hydro power plants or investing in biogas production (Som Energia, 2021). The EU is applying the principle of decentralisation and citizen-centred transformation from the CEP to a larger area of policy proposals that are being put forward under the European Green Deal. What will become particularly important for RECs in broadening their goals is that they enter other ways of energy production than just producing renewable electricity (i.e., the EU Strategy for Energy System Integration, 2020).

Paragraph 3 of Article 2 of the revised Renewable Energy Directive means an explicit recognition that community energy is not just about jointly producing renewable energy, and provides legitimacy for RECs to broaden their activities. Besides energy generation, including from renewable sources, distribution, supply, consumption, aggregation, energy storage, and a number of other activities are explicitly mentioned (in particularly to CECs). This includes engaging in energy efficiency services or charging services for electric vehicles; or to provide additional energy services to its members or shareholders. In Chap. 8 Hoppe and Coenen discuss the role energy communities can play in energy saving and why they are very well placed to do so. In Chap. 5 Candelise and

Ruggieri indicate that there are already RECs in Italy that focus on broader tasks than just producing renewable energy.

Many examples of energy-saving activities of the RECs towards their members and the broader community pertain to examples of a new type of REC that are becoming service providers of more energy services than just supplying renewable energy to end consumers. This however also requires change within RECs that have to enter new networks and see the value of an integrated system. In addition, it also requires RECs to possess sufficient knowledge and capacities on legislation within other areas like building codes. And this legislation is also changing. New EU legislation will be transposed into new national regulations and eventually new local rules. An example is an REC getting into the electrification of transport by organising e-car sharing (Schwabe, 2020; Bocken et al., 2020). This is an example of the production of renewable energy for the organisation of charging points, sustainable transport but also the buildings, where the charging points are often located.

11.5 New Insights Observed in Late-Starting Countries

The fourth observation introduced in Chap. 1 concerned a mismatch between academic attention and significance of the community energy movement in countries. A substantial part of the community energy literature focuses on the UK. The current academic literature predominantly uses cases from the UK with contributions from a few other countries such as Germany, Denmark and the Netherlands. In addition, whereas there are numerous studies analysing community initiatives in Central and Western Europe, there is far less research on community energy in Eastern European countries (Ruggiero et al., 2021). The same holds for Southern European countries.

For the questions in this volume, it is not relevant from which country the authors come but of which countries the empirical material is obtained. Based on an extensive review of literature on community energy Van der Schoor and Scholten (2021) conclude that there is a substantial

geographical bias in community energy studies. They looked at the geographical distribution of cases because the majority of the papers in the community energy literature rely on a case study approach and focus on one or more specific countries. Given that some studies compare cases in two or more countries, no less than 308 cases were analysed. Of these cases, one-third are about community energy in the UK, with Germany, the Netherlands and the US ranking second, third and fourth. Combined, more than two-thirds of all case studies on RECs study community energy in one of these four countries.

It is not easy to explain why less research on RECs is undertaken in other countries. One would first expect that there needs to be substantial cases before they can be researched and described, which might be a problem in the countries that are lagging behind. Another factor would be the size and intensity of social scientists studying community energy, which might explain for the attention in some smaller countries like Denmark and Austria compared to the UK. However, this does not explain for the position of the Netherlands as a smaller country. Another logical explanation would be the significance of the climate discussion in a country and the significant share of renewable energy from community energy projects. In Germany, RECs are responsible for a considerable part of the renewable energy produced. In contrast, if one looks at the significance of local renewable energy and strong renewable energy policies the lack of research on Denmark is remarkable (Van der Schoor & Scholtens, 2021). This brings us to the fourth sub-question: *Does more explicit attention to continental Europe and particular late-starting countries bring new insights?*

There a difference between countries that did get less attention in the academic literature, countries with less disseminated renewable energy communities and countries where the development of RECs started later. Chapter 5 by Candelise and Ruggieri on developments in Italy and Chap. 4 by Ziozas and Tsoutsos on developments in Greece show that there were early cases of REC activity in Italy and Greece. However, these appear lacking in Eastern European countries. Although the development and impacts of community energy undertakings are quite dependent on local cultural and political conditions and policies, from the

chapter contributions in this volume it looks that many factors are the same for the front-runners and late-starting countries.

Barriers for starting RECs were found to be roughly the same in the front-running and later-starting countries, but some barriers seem to be specific or have a stronger presence in the latter. In Eastern European countries, the dislike and distrust of cooperatives and communities and the lower level of civic engagement are a specific barrier. The problem of a lower civil society engagement is also present in Italy and Greece, but more specifically for renewable energy projects. Looking at other countries that receive less attention in the academic literature, they point us to the large variety of legal and organizational forms of collective renewable energy prosumers (Horstink et al., 2021). The case of Poland shows stronger involvement of private sector partners and municipalities, and initiatives from their side due to lower civic engagement.

11.6 Discussion

This volume began by raising the following question: *How did renewable energy communities in continental Europe evolve, and what can be learned from these experiences for the realisation of the Clean Energy Package?*

The CEP eventually will create conditions for better functioning energy markets with regard to the position of RECs, and in particular with an improved level playing field. However, there are also many factors in energy markets where RECs operate that still might influence their functioning. Moreover, even if the supportive EU legal framework for RECs is implemented into national legislation and policy frameworks, not all conditions for RECs will be optimal. There are still many factors grounded in the general economic situation, the broader energy markets, the attitude of citizens and the effect of the history and culture in countries that will be difficult to change. And there are developments outside of the EU that will influence CEP implementation, like national factors related to technological, economic and domestic energy market developments. Most of the experiences we discussed in this volume were with renewable energy communities and their predecessors. What problems does the CEP actually change for the existing and new RECs, and where does one

run into structural problems that cannot be solved easily? In this section, the realisation of the CEP will be discussed from the perspective of the successful translation of the principles of the CEP into national regulation and policy frameworks, along with potential problems that need to be overcome that hinder this process. This includes taking the perspectives of energy markets, business models and technological development.

First, the question can be raised as to how far the realisation of the CEP depends on the successful translation of the principles of the CEP into national regulation and policy. The new electricity market rules that the European Union put forward and need to be translated into new national laws that give consumers the right to produce, sell and share their own electricity in renewable energy communities. The chapters in this volume cannot provide clear answers to the question how the implementation of the directive itself evolves. According to Holstenkamp (see Chap. 6) Germany did not make the deadline for transposing the recast Renewable Energy Directive (RED II) into national legislation. The German legislator had at the moment of writing (2021) not taken any step to build a definition of energy communities and further support structures into the German Renewable Energy Sources Act. In contrast, late-starter Greece was fairly early with developing regulation that accommodates CEP with the 2018 law on energy communities,¹ which adopts cooperatives as the basis for its definition of energy communities but still a difficult situation for starting RECs (See Chap. 4 by Ziozas and Tsoutsos). At the moment of writing, in the Netherlands the bill concerning the new Energy Act that will implement the CEP was only recently finalized after public consultation. The Dutch energy cooperatives generally meet the European definition(s) (see Chap. 7 by Warbroek). However, the Dutch community energy movement was fairly disappointed with the delayed transposition of the CEP into national legislation. Moreover, RECs will likely not be adopted nor occur in the “new heating Act”.

A number of EU Member States already have some regulations and policy in place to support smaller and non-commercial market actors in the energy market as well as more decentralised renewable energy production. For EU Member States that already have elements in place the transposition of the EU Directives offer an opportunity to upgrade and

¹ Law 4430/2016 on Social and Solidarity Economy and the development of its actors.

expand, but as mentioned by Holstenkamp in Chap. 6 this does not necessarily happen in the front-runner countries yet. The author argues that he does not observe a “revival” of community energy after the introduction of the CEP. As far as the CEP is a “window of opportunity” for RECs and citizen energy, this opportunity was not taken in Germany. In contrast, in the Netherlands cooperative communities were observed anticipating on the introduction of the CEP by introducing the concept of a thermal energy community (*warmteschap* in Dutch; Schwencke, 2021; see Chap. 7 by Warbroek).

The importance of countries having feed-in tariffs (FiT's) to support the evolution of RECs was addressed. However, the EU decided to abandon this economic incentive and adopt a more market-driven approach to boosting renewable energy. In 2014, the FIT's, which had supported the citizen projects, were considered as ‘permissible State aid’. However, the 2014 EU Guidelines on State aid stipulated that auctions should be the preferred policy for renewable electricity. The assessment of the progress of electricity generation from wind and solar photovoltaic power by the European Court of Auditors (2019) led to the recommendation to the Commission to help EU Member States support further deployment by organizing auctions. However, auctions and tenders raise high thresholds for citizen initiatives. It makes it harder for RECs to enter energy markets on a fair level playing field. That is for instance because they cannot spread financial risk across different projects. In Chap. 6 Holstenkamp discusses problems with the German wind auction project where commercial project developers misused rules. Since 2016, Greece has moved from a standard FiT system to a tender process to support renewables. In Chap. 4 Ziozas and Tsoutsos mention a very recent Greek Law 4759/2020, which obliges all RECs from 2022 to compete with private investors in bids to ensure the operational support of RES projects.

How important is the EU by setting framework conditions to secure certain rights of RECs and establish enabling frameworks to ensure a level playing field and promote their development? For the EU internal market it is important that rules in Member States are the same. The stepping stone for the CEP was that in the past Member States had adopted different national frameworks. This was assessed in the process leading up to the CEP and in revising the directives. The previous directive RED I

had already offered the possibility to regulate renewables' self-consumption. However, there was a fragmented situation in national legislations that were nevertheless compliant with RED I, i.e., allowing prosumers to produce electricity for self-consumption, although in some countries there were barriers in the form of necessary licences and incurred costs. For instance in Poland, prosumers faced barriers like taxation and limitation on the benefits from electricity fed into the electricity grid (European Court of Auditors, 2019).

Two main changes that RED II introduces are the concept of renewables self-consumers and jointly acting self-consumers. The aims of RED II are to enable and regulate their contribution to the development of renewable energy. The EU Member States are obliged to include in their national regulation that self-consumers are not to be subjected to excessive, discriminatory charges or fees in relation to the electricity consumed, generated, or fed into the grid. However, in some cases, EU Member States may apply non-discriminatory and proportionate charges and fees to renewables self-consumers. They can differentiate between individual and jointly-acting renewables self-consumers in a proportionate and duly justified way.

A number of Member States already have regulations and policy frameworks in place to support the empowerment of smaller and non-commercial market actors in the energy market. But this might become a disadvantage as Holstenkamp sketches in Chap. 6 with regard to the German situation where the turns and twists in energy policy leave RECs in a struggle to find new business models that work.

Second, the realisation of the CEP depends on economic and energy market developments. The development of REC business models depends on public regulations and market structures. On the basis of RED II, the participation of private undertakings in RECs is guaranteed as long as it does not constitute their primary commercial or professional activity. Furthermore, there is the criterion of 'proximity', which limits the number private undertakings in RECs. It cannot just be any private undertaking from anywhere. However, commercial partners might be involved not for profit reasons but for 'green washing', corporate social responsibility or other reasons for access to renewable energy markets.

Member States are to ensure that RECs can participate in available support schemes on an equal footing with large participants. They are to take into account any specific national conditions when designing support schemes, without prejudice to Articles 107 and 108 TFEU. This can give rise to tension due to grid connection licences based on a lack of grid capacity. For instance, an ICT company which plans to construct a data centre buys or organises a large part of the renewable energy in a region (Koronen et al., 2020) and gets priority based on regional economic considerations.

There is a difference between local energy projects and community energy projects. Although both modes of generating decentralised energy share a common focus on area- or place-based systems of provision (Devine-Wright, 2019) there are key differences. As discussed by Holstenkamp (in Chap. 6) and in the case of the energy cluster in Poland (see Chap. 3 by Ruggiero cs.) there is a risk of neoliberal ideas that frame RECs as non-efficient market parties. In the UK, policy on decentralized energy has shifted from community energy to local energy, which signals reduced support for grassroots, citizen-led action in favor of institutional partnerships and private sector company-led investment (Devine-Wright, 2019). Here, the risk is that projects are labelled as RECs but do not have the characteristics of a real civil society-based renewable energy community with actual citizen ownership, democratic control, autonomy and non-commercial goals.

Third, the realisation of the CEP depends on technological development. As renewable energy technology continues to develop, many energy communities are exploring the possibilities of storage, demand-response, grid balancing, bundling collectively generated energy into virtual power plants and microgrids (ECCO, 2021), among other things. These technological developments in combination with the CEP push for professionalisation of the community energy sector (see Holstenkamp in Chap. 6). However, the question can be raised whether RECs are willing—even with intermediary support (see Chap. 7 by Warbroek)—to professionalize?

Regulation will not develop as quickly as innovation. It typically follows or is developed in response to innovation taking hold, also in European energy markets (Hoppe et al., 2018). This forms a potential

problem if RECs want to develop and implement innovative concepts, technologies and business models. For example, the Dutch tax system has been taxing battery storage systems twice, once when storing energy, and second when feeding it back into the electricity grid, which was limiting the integration of storage technologies. This will be solved in the Netherlands under the new Energy Act implementing the EU regulation with the CEP (Energy act, 2020), which targets energy systems to become more embedded and integrated systems. This also pays attention to other dimensions like heat and power (EU Strategy for Energy System Integration, 2020). However, there is currently a lack of EU rules on emerging energy market developments like storage and hydrogen. In general, the societal cost of grid capacity and grid connection makes the upscaling of RECs difficult. Another example is that although there are serious grid capacity problems there are still national governments that use economic incentives that promote feeding electricity into the grid instead of encouraging direct use first (i.e., pro-suming). In some cases this leads to problematic behavior because feeding electricity into the grid is compensated by a higher subsidy than using it. Some RECs might want to encourage a closed distribution system with limited feedback to the grid, or even closed systems or microgrids (autarkic systems) but this is often not considered rewarding.

11.7 Suggestions for Future Research

There are many differences between existing RECs. They come in all kinds of different shapes and sizes (Horstink et al., 2021) and they can engage in any energy-related activity, although the majority of RECs remain engaged in electricity generation—mostly solar and wind energy. In line with the four observations that are key to this volume, we shortly make some suggestions for future research.

First, the observation that the instrumental function of REC involvement in the energy transition has increased in importance. We concluded that there is a potential tension between the original idealistic motives of saving energy and producing renewable energy, and becoming serious players in energy markets. This raises the research question whether the

tendency towards an instrumental perspective of community energy can influence the value and principles of their local, social, democratic and cooperative identities due to the call for scaling, professionalisation and new business models of RECs as consequences of the new market requirements.

Second, the observations about differences between front-running and late-starting countries require more research into the factors that explain the differences between EU countries. This should address both differences in transposing the CEP into national legislation and policy support mechanisms as well in other exploratory factors such as attitudes toward the cooperative model and the cultures of local energy activism.

The third observation concerned the trend of broadening the goals and activities of renewable energy communities over the years. This deals with the provision of these multiple energy services—more specifically if they become activities that are more commercial—and the consequences this might have with regard to the identity of RECs. This needs more academic attention.

The fourth observation concerned a mismatch observed between academic attention and the significance of the community energy movement. The community energy movement is treated in this body of literature as a social phenomenon with a strong focus on ‘self-determination’ of citizens as final customers. However, the energy transition is not one-dimensional but also entails other issues that are important and also relate to sustainable transitions, like the pathway to climate neutrality, decentralised and sustainable energy generation, the circular economy and the digital society. This requires a more integrated system perspective (Caramizaru & Uihlein, 2020) on the role of RECs within socio-technical systems. Socio-technical systems (Verbong & Geels, 2007) have already attracted had lots of attention in the sustainable transitions literature focusing on RECs as a social innovation and a developing niche (see Chap. 7 by Warbroek; Hoppe et al., 2015; Dóci et al., 2015). A different angle would be the acceptance of the necessary social and technical innovations. Social acceptance research tends to focus on public acceptance of support for specific energy generation projects (Wüstenhagen et al., 2007). More specific research is also needed on the acceptance of specific modes of decentralised energy provision and the

relation between energy communities and the acceptance of energy saving practices, energy efficient and smart energy technologies, in particular in relation to demand control measures and flexibility (Coenen & Hoppe, 2018).

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