



**European Committee
of the Regions**

**Commission for
the Environment,
Climate Change and Energy**

ENVE

Models of Local Energy Ownership and the Role of Local Energy Communities in Energy Transition in Europe



© European Union, 2018

Partial reproduction is permitted, provided that the source is explicitly mentioned.

More information on the European Union and the Committee of the Regions is available online at <http://www.europa.eu> and <http://www.cor.europa.eu> respectively.

Catalogue number: QG-01-18-933-EN-N; ISBN: 978-92-895-0989-3; doi:10.2863/603673

**This report was written by Mariya Gancheva, Sarah O'Brien, Nicola Crook
and Catarina Monteiro (Milieu Ltd, Belgium).**

**It does not represent the official views of the European Committee
of the Regions.**

Table of contents

- Main findings 1
- Recommendations 4
- 1. Introduction 7**
- 2. Local energy ownership models across the EU..... 11**
 - 2.1 Overview of local energy ownership models in the EU 11
 - 2.2 Member State examples 15
 - 2.2.1 *Denmark*..... 16
 - 2.2.2 *Germany*..... 18
 - 2.2.3 *Ireland*..... 20
 - 2.2.4 *Greece*..... 22
 - 2.3 Typical success factors and enabling framework conditions 23
 - 2.4 Typical obstacles 24
 - 2.5 Lessons for local energy ownership models 26
- 3. Local and regional energy cooperatives 29**
 - 3.1 Overview of local and regional energy cooperatives 29
 - 3.2 Socio-economic impact of energy cooperatives..... 31
 - 3.3 Relevant aspects of the regulatory environment and the electricity market design 33
 - 3.4 Best practices 37
 - 3.4.1 *Production of renewable energy*..... 38
 - 3.4.2 *Provision of district heating* 40
 - 3.4.3 *Operation of distribution networks*..... 40
 - 3.4.4 *Provision of energy efficiency or other energy services*..... 41
 - 3.5 Lessons for energy cooperatives 42
- 4. Analysis of relevant EU legislation 45**
 - 4.1 Current legislation 45
 - 4.2 Post-2020 outlook..... 48
 - 4.2.1 *Acknowledging local energy communities and prosumers*..... 49
 - 4.2.2 *Electricity market design* 52

5. Conclusions and recommendations	55
5.1 EU policy-makers	56
5.1.1 <i>Maintain a stable policy environment for promotion of renewable energy.....</i>	<i>56</i>
5.1.2 <i>Establish energy market rules that can support an energy transition in all aspects of the system.....</i>	<i>57</i>
5.2 National policy-makers	58
5.2.1 <i>Acknowledge the role and specific needs of local energy communities in relevant national policies and legislation</i>	<i>58</i>
5.2.2 <i>Establish policies and rules that promote local energy communities and local collaboration</i>	<i>59</i>
5.2.3 <i>Adopt simplified and proportionate regulatory and administrative procedures for local energy communities.....</i>	<i>59</i>
5.2.4 <i>Ensure local energy communities have access to technical information, guidance and finance</i>	<i>60</i>
5.3 Local and regional authorities	60
5.3.1 <i>Adopt local policies for the development of local energy communities</i>	<i>60</i>
5.3.2 <i>Explore the opportunities to partner with or establish local energy communities</i>	<i>61</i>
Annex 1: List of references	63

List of tables

Table 1: Strengths and weaknesses of the different local energy ownership models	25
Table 2: Overview of the provisions concerning RE installations, prosumers and local energy communities in the Member States	32

List of abbreviations

CHP	Combined Heat and Power
CoR	Committee of the Regions
DSO	Distribution System Operator
EED	Energy Efficiency Directive
EESC	European Economic and Social Committee
IEM	Internal Energy Market
LRA s	Local and Regional Authorities
PPP	Public-Private Partnership
PV	Photo-Voltaic
RE	Renewable Energy
RED	Renewable Energy Directive
RES	Renewable Energy Sources
SEAI	Sustainable Energy Authority of Ireland
SEC	Sustainable Energy Communities
SECAP	Sustainable Energy and Climate Action Plan

Executive Summary

The purpose of the study '*Models of Local Energy Ownership and the Role of Local Energy Communities in Energy Transition in Europe*' is to inform the European Committee of the Regions (CoR) in the preparation of its opinion on local energy communities. This study aims to support the opinion through an analysis of:

- Different local ownership models and the enabling framework conditions or obstacles/ barriers they face;
- Energy cooperatives, their socio-economic impacts and relevant aspects of the regulatory environment;
- The EU legislation and how it addresses the operation of local energy communities.

Section 1 provides an introduction to the topic and outlines some key concepts. Section 2 focuses on the different models for local energy ownership and provides country examples with the aim of illustrating typical success factors and obstacles for local energy ownership. Section 3 explores in more detail energy cooperatives as an example of local energy communities, examining their socio-economic impacts, aspects of the regulatory environment that affect them and providing some best practice examples. Section 4 offers an analysis of the strengths and weaknesses of the EU legislation that can impact the operation of local energy communities, the analysis covers both the current legislation and some key proposals from the post-2020 policy framework. The final part of the study, section 5, provides conclusions and recommendations based on the findings of the previous sections. To the extent possible, recommendations for policy-makers at different governance levels are distinguished. The study is based on a review of publicly available literature and information sources and stakeholder feedback collected through interviews and the CoR stakeholder consultation workshop on "Models of local energy ownership" held on 10 July 2018.

Main findings

The implementation of the EU climate and energy policy objectives entails a transition to a new energy system where Renewable Energy Sources (RES) are used and new technologies are developed and adopted. To some extent, this will require decentralisation of the energy system and an evolution in the roles of energy producers and consumers, so that new opportunities to generate renewable energy and deploy new technologies are realised. This transition has

already resulted in more active participation of individual consumers or collectively acting citizens in the energy system to produce Renewable Energy (RE) or take on other activities such as management of local grids. Community-led initiatives based on local collaborative solutions that can be set up by individuals, groups of individuals, households, small businesses or local authorities that operate individually or in an organised way are often referred to as ‘local energy communities’. These communities are expected to play an important role in the energy transition as they can enable the development of sustainable energy technologies and bring a variety of benefits to local communities.

In practice, the organisational structures of community energy initiatives vary, and include different legal forms such as partnerships (including public-private partnerships (PPPs) with local authorities), co-operatives, community trusts and foundations, limited liability companies, non-profit customer-owned enterprises, housing associations and municipal ownership. Regardless of the specific legal forms local energy communities take, their emergence can be attributed to several key processes that are gaining traction across the EU:

- Remunicipalisation – the process of increasing municipal control over local energy management;
- Devolution - the process of increasing the strategic and political role of local authorities in energy policy;
- Participative governance – the promotion of direct democracy and citizens’ influence on energy and climate policies.

These processes have resulted in a growing local participation in energy systems in the EU. The remunicipalisation and devolution trends have resulted in the municipal ownership of energy systems through, for example, public utility companies or PPPs. At the same time, participative governance has resulted in a growing number of citizen-led energy initiatives, most often taking the forms of partnerships or cooperatives.

Although on a positive trajectory, the level of development of local energy communities is not the same in all Member States and it is considerably more advanced than in others. The success factors and obstacles behind the development of local energy communities has been studied in this report through an analysis of four Member State examples: Denmark, Germany, Greece and Ireland. The Member States have been selected to cover a broad range of local energy models; from those that are well established and regarded as leaders of community energy (Germany and Denmark), to those that currently have no national strategy for community energy (Ireland) or are only starting to support local energy communities in a targeted way (Greece).

The analysis of success factors and potential barriers to local community development from the country examples and literature suggests that the successful uptake of the local energy ownership models depends upon:

- A clear political commitment to energy transition and stable policies for the development of RES at all governance levels;
- A clear legal framework that governs the establishment, functioning and access to the energy market for local energy communities;
- Access to financing instruments or partnership schemes for de-risking the investments;
- Synergies and partnerships with local and regional authorities (LRAs).

Energy cooperatives are one of the most common forms of local energy communities. They can provide different services across the energy sector such as: self-production and consumption; RE production for sale on the grid; ownership or operation of storage facilities, micro-grids and other distribution infrastructure; provision of energy efficiency and other services; aggregate demand response and distributed generation of RE to provide flexibility services. While energy cooperatives share most of the features of other forms of local energy communities, they are a unique ownership model from an economic and legal perspective. Unlike traditional businesses, cooperatives are owned by their members/users on a ‘one member – one vote’ principle and aim to maximise local benefits rather than the return on capital. Like other forms of local energy communities, energy cooperatives contribute to a more democratic energy system and local social and economic development by, for example, addressing energy poverty and creating employment in the community. Nevertheless, their success also depends on the regulatory framework that governs their operations and particularly their access to the energy system.

The EU-level policy instruments that have the biggest impact on local energy communities, including energy cooperatives, are the EU Renewable Energy Directive (RED, Directive 2009/28/EC) and the common rules for the internal energy market (IEM) in electricity (Directive 2009/72/EC). While the RED aims to promote renewable energy, including through the use of support schemes, the State aid guidelines (Communication 2014/C 200/01) may render some national support mechanisms incompatible with the internal market. In addition to EU policies, national legislation transposing or complementing EU legislation can further affect local energy communities. A brief review of the main provisions for RE installations in the different Member States suggests that most countries lack a legal definition of a ‘local energy community’, ‘energy cooperative’ or related concepts. Even though all Member States provide some types of RE support mechanisms, including feed-in tariffs, feed-in premiums or quota obligations, only some countries allow priority access to the grid for renewable

energy or a simplified procedure for the permitting of small RE installations.

While the current EU legislation lacks a specific focus on local energy communities, the proposals for a new RED and a new IEM Directive for electricity, put forward in the process of implementing the EU 2030 climate and energy policy framework and the Energy Union goals, make considerable progress. Both proposals provide definitions for what is a ‘renewable energy community’ and a ‘local energy community’ respectively and outline provisions that aim to ensure access of such communities to the energy market. Nevertheless, the current proposals need to be clarified to ensure consistent transposition across the Member States and to better recognise the needs of local energy communities, including their need for additional support and incentives, where relevant.

Recommendations

Considering the obstacles local energy communities might face and the necessary conditions for their success, policy-makers at different governance levels need to ensure there is a stable legal and regulatory framework for RE and undertake more concrete actions to promote the development of local energy communities. The specific actions for different policy-makers are outlined below.

EU policy-makers have an important role in setting a level-playing field and minimum requirements for the promotion of local energy communities in the EU. Hence, they should:

- **Maintain a stable policy environment for promotion of renewable energy:** Maintaining a stable policy framework for the promotion of RE, especially concerning financial support independent of energy market prices, is crucial for ensuring non-traditional market actors such as local energy communities can participate in the energy system. While the design of the specific support mechanisms remains a national competency, the EU legislation should not limit the possibilities for Member States to continue supporting RE with both market-based and market-independent financial support measures.
- **Establish energy market rules that can support an energy transition in all aspects of the system:** The proposals for a new IEM Directive for electricity and a new RED are significant improvements to the current EU legislative framework. However, their provisions should be clarified further to ensure they cover the variety of services local energy

communities provide, such as energy efficiency and energy savings, storage, management of local distribution networks, aggregation and flexibility services. Furthermore, the rules should allow simplified administrative procedures for small RE producers and local energy communities and possibilities for such actors to aggregate their production and supply energy as a larger unit, including through the use of novel approaches such as virtual power plants.

- **Ensure consistency and coherence between different policies:** It is paramount that the provisions in different EU legislative documents are coherent in their treatment and promotion of local energy communities and do not provide contradictory rules. Moreover, the relevant EU energy legislation should acknowledge the specific features and needs of local energy communities and allow for special treatment and support where relevant. This should be adequately reflected by the EU state aid guidelines.

National policy-makers are responsible not only for transposing and implementing EU legislation but also for defining specific national objectives and incentives for local energy communities. Hence, they should:

- **Acknowledge the role and specific needs of local energy communities in relevant national policies and legislation:** Member States should follow the steps taken at EU level for defining the roles of local energy communities and adopt similar definitions and provisions about their activities. National policy-makers might also define concrete objectives for community energy and its contribution to national energy goals. Nevertheless, national policy-makers should be careful not to propose definitions or objectives that are too restrictive and may exclude some types of individual producers and consumers and local energy communities.
- **Establish policies and rules that promote local energy communities and local collaboration:** To complement potential objectives for community energy, national policy-makers can also establish specific policies/rules for promotion of local energy communities. These rules can take different forms and target various aspects of the local energy ownership models such as their focus on local benefits, sustainability or environmental benefits.
- **Adopt simplified and proportionate regulatory and administrative procedures for local energy communities:** National policy-makers should offer simplified and proportionate administrative procedures for

small RE projects (e.g. led by individual citizens) and local energy communities to ensure cumbersome procedures do not deter their activities. The provisions encouraging Member States to establish ‘one-stop-shops’ and time limits for the permitting procedures for RES projects proposed in the new RED are an important basis upon which Member State can build solutions tailored to their national context.

- **Ensure local energy communities have access to technical information, guidance and finance:** National policy-makers can set up dedicated finance support schemes for local energy communities, to especially help them during the planning and project set-up phases. Such mechanisms can be, for example, grant-to-loans, guarantees or cheap credit opportunities. Additionally, national policy-makers should facilitate the access of local energy communities to technical information and guidance about setting up, financing and operating community projects.

Local and regional authorities can complement the EU and national policies for promoting local energy communities and be important partners to local energy communities. Therefore, LRAs should:

- **Adopt local policies for the development of local energy communities:** LRAs can complement EU and national policies by adopting further local objectives for the contribution of local energy communities to local energy targets e.g. by committing to sustainable energy targets in the framework of the Covenant of Mayors¹ initiative. Hence, LRAs should identify how local energy communities can best contribute to meeting local energy goals (and other objectives, such as social policy goals) and establish mechanisms that support their development, including advisory services or provision of financial support.
- **Explore the opportunities to partner with or establish local energy communities:** To strengthen the contribution of local energy communities to local policy goals LRAs can also partner with existing communities or establish new ones in cooperation with local citizens. LRAs and local energy communities are suitable partners, as LRAs can provide space for RE projects, administrative support and access to capital at preferential rates, while local energy communities can provide technical expertise and oversee the operation of the projects.

¹ <https://www.covenantofmayors.eu/>

1. Introduction

The 2015 Energy Union Package² spells out the overall EU energy strategy as ensuring secure, affordable and sustainable energy supply based on five pillars:

- Energy security, solidarity and trust through diversification of the energy supply;
- Full integration of the internal energy market;
- Energy efficiency;
- Decarbonisation of the economy through climate and renewable energy policies;
- Research, innovation and competitiveness in the energy sector.

The actions under all these pillars entail a transition to a new energy system where Renewable Energy Sources (RES) are used and new technologies are developed and adopted. To some extent, this will require decentralisation of the energy system and an evolution in the roles of energy producers and consumers, so that new opportunities to generate renewable energy and deploy new technologies are realised.

So far, the energy system in Europe, and thus the energy policies that govern it, is based on centralised production (using mainly fossil fuels) and the notion that citizens are passive consumers of the energy generated³. The growing use of RES has resulted in the need to decentralise the energy system and re-evaluate the role of consumers in it. The legislative proposals under the 2016 EU energy package, which aim to update the EU energy policies post-2020, recognise and formulate more concretely the roles of consumers, citizens and local authorities in the energy transition⁴. The 2016 Communication on ‘Clean Energy for All Europeans’⁵ recognised the fundamental role of consumers in realising the full potential of the European energy market, and the need to offer them the opportunity to actively and beneficially participate in the energy transition process. The measures outlined in the different policy proposals of the 2016 energy package (e.g. the proposals for a new Renewable Energy Directive (RED) and a new Directive on common rules for the internal energy market (IEM) for electricity) aim to make it easier for consumers to generate their own energy, store it, share it, consume it or sell it back to the market either directly or as energy cooperatives (for further details see section 4).

² European Commission, 2015, Energy Union Package, COM(2015) 80 final.

³ Roberts, J, Bodman, F and Rybski, R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy.

⁴ Rochon, E. 2018, People leading the renewable revolution.

⁵ European Commission, 2016, Clean Energy For All Europeans, COM(2016) 860 final.

These evolving and increasingly overlapping roles of energy producers and consumers have resulted in the use of the terms ‘prosumers’ or ‘active customers’. ‘Prosumers’ broadly refers to energy consumers who also produce their own energy from a range of different onsite generators, mainly from RES⁶. The Proposal on common rules for the internal market in electricity⁷ defines ‘active customers’ as individuals or groups of jointly acting customers who consume, store or sell electricity generated on their premises or participate in demand response or energy efficiency schemes as long as these activities do not represent their primary commercial or professional activities.

While such a definition clarifies the activities that characterise a prosumer or an active customer, it remains vague what individuals or organisations can be covered by it. A definition of ‘prosumers’ outlined by the European Economic and Social Committee (EESC) in its own-initiative opinion on the topic provides examples of different prosumers that can complement the understanding of ‘active customers’ provided by the Commission’s definition. According to the EESC, prosumers (or active customers) can be individuals, groups of individuals, households, small businesses, social enterprises or local authorities that operate individually or in an organised way, for instance through associations, foundations or cooperatives⁸.

Such community-led initiatives based on local collaborative solutions that enable the development of sustainable energy technologies are increasingly perceived as key potential actors in the transition toward low-carbon energy systems⁹. Hence, the Proposal on common rules for the internal market in electricity¹⁰ recognises the significant role of such initiatives and provides a definition also for a **'local energy community'**:

‘an association, a cooperative, a partnership, a non-profit organisation or other legal entity which is effectively controlled by local shareholders or members, generally value rather than profit-driven, involved in distributed generation and in performing activities of a distribution system operator, supplier or aggregator at local level, including across borders’.

⁶ European Commission, 2017, Study on Residential Prosumers in the European Energy Union, p.31 (main document).

⁷ European Commission, 2017, Proposal for a *Directive of the European Parliament and of the Council on common rules for the internal market in electricity*, COM(2016) 864 final/2, p.52.

⁸ European Economic and Social Committee, 2016, Prosumer Energy and Prosumer Power Cooperatives: opportunities and challenges in the EU countries, Opinion TEN/583.

⁹ Bauwens, T. Gotchev, B. and Holstenkamp, L. What drives the development of community energy in Europe? The case of wind power cooperatives.

¹⁰ European Commission, 2016, Proposal for a *Directive of the European Parliament and of the Council on common rules for the internal market in electricity*, COM(2016) 864 final/2, p.52.

Local energy communities are also linked to the concept of energy democracy. Although there is no strict definition of ‘energy democracy’, it concerns the shift of power over all aspects of the energy sector (from production to distribution and supply, from finance to technology and knowledge) to consumers and workers, with increased importance attached to social and environmental goals¹¹. This growing ‘community power’ allows citizens to participate more meaningfully in the production and use of sustainable energy and contribute to the EU’s energy transition. Community power can support the shift to low carbon energy systems as it drives the adoption of sustainable energy policies, ensures RES projects benefit from public support and acceptance, and contributes to energy self-sufficiency. In addition, community power and local energy projects can allow communities to harness local resources, build social capital, create employment, generate revenue and financial benefits and combat fuel poverty¹².

Local energy communities can take different forms and constitute different types of local energy ownership. They can be partnerships, cooperatives, non-profit organisations or entities owned by the local authorities. While each type offers different benefits and can be better suited to certain local rules and conditions (e.g. specific national or local legislation as outlined in section 2), all forms of community energy have the potential to contribute to the above-mentioned benefits and should be promoted. Therefore, national or local rules can stimulate the development of local energy communities through clear rules about their activities and promotion of at least partial local ‘ownership’¹³.

Prominent examples of local energy ownership are remunicipalisation and cooperative structures. While the former refers generally to the retaking of ownership of energy services by local authorities, the latter concerns multiple individuals that collectively invest in energy. Even though there is a surge in local energy communities, their number varies enormously across Europe. While remunicipalisation has been observed (e.g. in Germany) and the renewable energy (RE) cooperative model is well-established in some countries, they remain marginal in others.

In this report, a comparative analysis of the contextual factors that affect the development of local energy community initiatives and ownership models is conducted, with a focus on several countries: Denmark, Germany, Ireland, and

¹¹ Angel, J. 2016, *Towards Energy Democracy: Discussions and outcomes from an international workshop* Amsterdam, 11-12 February, p.3.

¹² Roberts, J, Bodman, F and Rybski,R 2014. *Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy*.

¹³ Roberts, J, Bodman, F and Rybski,R 2014. *Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy*.

Greece. The analysis highlights how different factors combine to facilitate or, conversely, hinder, the development of local energy communities (section 2) and functioning of RE cooperatives (section 3). The common patterns that emerge from this trans-national comparison are emphasised without neglecting national specificities. This is complemented by an analysis of the EU legislation relevant for the development of local energy initiatives (section 4) with the goal of outlining recommendations for future action (section 5). The report is based on a review of publicly available information (e.g. academic literature, news reports, reports by EU organisation and other stakeholders; for a list see Annex 1) and stakeholder feedback collected through interviews and the CoR stakeholder consultation on "Models of local energy ownership" held on 10 July 2018.

2. Local energy ownership models across the EU

According to the literature, it is evident that ‘local energy’ does not have a stringent definition, but rather is generally treated as a flexible concept that is interpreted differently across contexts and sectors. The term encompasses a wide range of activities and structures, including the likes of heat or power generation, as well as demand reduction activities, which are led by local authorities or citizen volunteers and involve communities of locality and/or communities of interest. Local energy can generally be readily distinguished from other forms of energy projects by high levels of community participation in a project, including in decision-making, and a high degree of local benefit-sharing.

The following section is a qualitative overview and exemplification of the types of local energy ownership models across the EU, exploring typical enabling framework conditions and problems/obstacles encountered by the various types.

2.1 Overview of local energy ownership models in the EU

Overall, community RES projects or local energy communities can be considered schemes in which citizens are highly involved in decision-making or where there is an emphasis on local benefits such as energy access, job creation, community regeneration and education. Such projects can be owned completely by a community and/or its citizens (e.g. a RE cooperative) or represent a hybrid model of partnerships between citizens, public or private organisations¹⁴.

In practice, the organisational structures of community energy initiatives vary, and include different legal forms such as partnerships (including public-private partnerships (PPPs) with local authorities), cooperatives, community trusts and foundations, limited liability companies, non-profit customer-owned enterprises, housing associations and municipal ownership¹⁵. In order for these models to come into fruition, there is a need to shift corporate, social and governmental frameworks. The categories below offer examples of processes that promote the introduction of the local energy ownership models mentioned above. In many instances, these approaches are used concurrently:

¹⁴ Hanna, R. 2017, Community Renewables Innovation Lab, Energy Transition Platform Policy Briefing.

¹⁵ Roberts, J, Bodman, F and Rybski, R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy.

- *Remunicipalisation* refers to the operational role of local authorities and their economic decisions that lead to an increase of municipal control over energy management (e.g. setting up new or taking back control over existing local energy companies and energy infrastructure)¹⁶. This municipal ownership allows more political involvement in the local energy market¹⁷ and more control over the local energy systems, and has been pioneered in Germany with great success.
- *Devolution* refers to an increasing strategic and political role for local authorities in energy policy through the transfer of powers from the national government, concerning the preparation and implementation of energy planning and regulations¹⁸. This usually entails city councils taking responsibility for the energy supply of their territory, and is cited as easing interactions and information flow between citizens and government¹⁹.
- *Participative governance* refers to all the tools implemented to promote direct democracy and allow citizens to influence energy and climate policies (e.g. discussion forums, participative budgets, co-building of planning schemes). This process can encourage an energy agenda that corresponds to local needs and opportunities, whilst also improving transparency and accountability in public service delivery²⁰.

These processes drive local participation in energy systems and can be found throughout the EU. The remunicipalisation and devolution trends have resulted in the municipal ownership of energy systems through, for example, public utility companies or PPPs. For instance, in several European countries (France, Germany and Scandinavian countries) a number of municipal companies are operating local energy projects. Local authorities and citizens are motivated by a number of factors to end the private management of energy services, including a general refusal of corporate power and the belief in a more localised generation of power²¹.

¹⁶ Energy Cities, 2017, Local Energy Ownership in Europe: An exploratory study of social public initiatives in France, Germany and the United Kingdom.

¹⁷ Wagner, O. and Berlo, K. The wave of remunicipalisation of energy networks and supply in Germany – the establishment of 72 new municipal power utilities.

¹⁸ Energy Cities, 2017, Local Energy Ownership in Europe: An exploratory study of social public initiatives in France, Germany and the United Kingdom.

¹⁹ Walton, M. 2012, Social and Economic Benefits of Community Energy Schemes.

²⁰ Energy Cities, 2017, Local Energy Ownership in Europe: An exploratory study of social public initiatives in France, Germany and the United Kingdom.

²¹ Energy Cities, 2017, Local Energy Ownership in Europe: An exploratory study of social public initiatives in France, Germany and the United Kingdom.

Devolution has occurred in Scandinavian and federal countries (e.g. Belgium and Germany), resulting in city councils bearing responsibility for the energy supply of their territory. In many instances, they have opted to create local energy companies to oversee the local supply networks. In other countries, local authorities do not have this ability as this competence was traditionally a monopoly of the national government, before becoming a private one in some countries²².

At the same time, participative governance has resulted in a growing number of citizen-led energy initiatives, most often taking the forms of partnerships or cooperatives. Cooperatives are the most common form of organisational structure adopted by community energy initiatives²³. They constitute *‘democratic structures that follow a set of internationally agreed principles and make decisions on a one-member-one-vote basis; day-to-day operation is governed by an elected board.’*²⁴. In general, they allow a moderate return to investors, and require fewer administrative and legal requirements than that of a private company²⁵. In several Member States, an increasing share of RE is now produced by cooperatives. For instance, in Germany, there are more than 600 RE cooperatives and local groups, including some community owned projects that produce electricity. RE cooperatives also provide a new opportunity for local energy production and ownership, transforming the energy market and defining national schemes. Energy cooperatives and other forms of local community energy can also support energy efficiency projects (e.g. retrofitting or new developments)²⁶. Section 3 explores energy cooperatives as a form of local energy ownership in more details.

Another common legal entity for community energy ownership are partnerships. They can be set up between individuals or legal persons and usually take one of two forms depending on the liability for debts: ‘joint and several’ liability partnerships where each member is liable or a ‘limited’ partnership where a separate corporate structure is established so that individual investors have limited liability for the partnership’s debts²⁷. Partnerships tend to be governed by a management board, with the ownership rights dependent on the financial

²² Energy Cities, 2016, The new local flavour.

²³ REN21, 2016, Renewables 2016 Global Status Report, Chapter 7: Feature: Community Renewable Energy, p.137.

²⁴ REN21, 2016, Renewables 2016 Global Status Report, Chapter 7: Feature: Community Renewable Energy, p.137.

²⁵ Roberts, J, Bodman, F and Rybski, R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable.

²⁶ Smith, C. et al. 2016, Social Innovation and Community Energy best practices, methods and tools across Europe.

²⁷ Roberts, J, Bodman, F and Rybski, R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable.

investment of each partner²⁸. The use of a partnership model has several benefits, including the possibility of certain tax advantages, the equal distribution of responsibilities and profits, and the ability to ensure decision-making is more democratic and transparent than that of a traditional company. Bylaws of the partnership may establish limitations on ownership, determine how decisions are made, and stipulate who may participate²⁹. For instance, in Germany, limited partnerships with a private company as a general partner are a commonly used structure for community energy, while in Denmark, energy partnerships often function under the title of ‘association’³⁰.

Other legal forms for community energy projects can be non-profit enterprises, foundations and trusts. Non-profit, customer-owned enterprises follow the framework of cooperatives with the addition of specific rules. For example, the organisation’s rules might stipulate that *‘ownership might require grid connection, or votes may be capped to limit the power of individuals who own multiple properties’* making this set-up particularly suitable for community projects that rely on independent grid networks³¹. For instance, this model of community energy ownership has been particularly prevalent in Denmark in relation to its district heating sector³². To ensure that returns on investment and benefits from community energy projects support the local community, ownership models in the form of trusts and foundations are most suitable. These organisations are intended to act for the broader community benefit (as opposed to the profit of particular members) and allow the profits from the renewable energy project to be reinvested back into the local community for specific local ventures – this ensures that even those citizens who do not have the capital to invest directly benefit from community energy³³.

Housing associations can also act as a model of local energy. They operate as private, non-profit organisations that are able to *‘finance community renewable energy projects by adjusting tenant rents’*³⁴ and can be instrumental in

²⁸ REN21, 2016, Renewables 2016 Global Status Report, Chapter 7: Feature: Community Renewable Energy, p.137.

²⁹ Roberts, J, Bodman, F and Rybski,R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable.

³⁰ REN21, 2016, Renewables 2016 Global Status Report, Chapter 7: Feature: Community Renewable Energy, p.137.

³¹ REN21, 2016, Renewables 2016 Global Status Report, Chapter 7: Feature: Community Renewable Energy, p.137.

³² Roberts, J, Bodman, F and Rybski,R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy.

³³ Roberts, J, Bodman, F and Rybski,R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy.

³⁴ REN21, 2016, Renewables 2016 Global Status Report, Chapter 7: Feature: Community Renewable Energy, p.137.

addressing social issues such as fuel poverty³⁵. However, residents sometimes have only limited control over decisions of the housing association, which can act as a barrier to such a model becoming successful within the community³⁶. Such a system can be found for example in social housing estates in Denmark, where tenants are members of a housing association and can take decisions concerning the management of the estate³⁷.

Community energy ownership can take other legal forms led by companies, social enterprises or citizens depending on the national circumstances and laws³⁸. For instance, public and private limited liability companies are gaining popularity (especially in Europe and North America) as a form of ownership attractive to investors who wish to limit their liability, whilst simultaneously protecting private assets from losses³⁹.

Regardless of their form, local energy ownership can empower local communities to deploy RES and energy efficiency solutions, develop new smart energy transition models and supply chains⁴⁰. At the same time some forms of local energy ownership models such as RE cooperatives can provide local citizens with cheaper energy⁴¹, while bringing communities closer to energy democracy⁴². However, like any form of energy investment, community and local energy projects have significant financing requirements and need consistent policy support. If these are not in place in the relevant national structure, the success of community energy projects can be jeopardised.

2.2 Member State examples

The following section identifies specific Member State examples of existing local ownership models in the energy sector. The Member States have been selected in order to cover a broad range of local energy models; from those that

³⁵ Roberts, J, Bodman, F and Rybski,R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable.

³⁶ REN21, 2016, Renewables 2016 Global Status Report, Chapter 7: Feature: Community Renewable Energy, p.137.

³⁷ Roberts, J, Bodman, F and Rybski,R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable.

³⁸ Roberts, J, Bodman, F and Rybski,R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable.

³⁹ REN21, 2016, Renewables 2016 Global Status Report, Chapter 7: Feature: Community Renewable Energy, p.137.

⁴⁰ Smith, C. et al. 2016, Social Innovation and Community Energy best practices, methods and tools across Europe.

⁴¹ European Economic and Social Committee, 2016, Prosumer Energy and Prosumer Power Cooperatives: opportunities and challenges in the EU countries, Opinion TEN/583.

⁴² Creupelandt D. and Vansintjan, D. REScoop – Mobilizing European Citizens to Invest in Sustainable Energy, Deliverable 2.3 REScoop – Municipality Approach.

are well established and regarded as leaders of community energy, to those that currently have no national strategy for community energy. Germany and Denmark offer the opportunity to analyse different drivers and legal models that have been deployed which have allowed them both to be at the forefront of local energy generation within the EU, albeit with different favoured forms of energy and legal avenues available. Ireland allows us to examine the prevalence of local energy in a Member State that has very little in the way of regulatory support for community energy projects. The comparison between these three countries enables a generalisation of success factors and potential barriers to community energy generation within the EU. Finally, Greece is analysed as an example of a Member State attempting to progress towards a more supportive national structure for local energy generation; the current draft law provides a snapshot of the key elements that a Member State currently attempting to revolutionise its energy sector in favour of community energy believes are required to ensure a successful energy transition. A brief overview of the current state of community energy, as well as the background and rationale behind it, is given for each country. The differing enabling conditions, leading to both success factors and barriers to community energy, are then subsequently analysed.

2.2.1 Denmark

Denmark has a history of supporting the development of RES, and is considered one of the pioneering nations in regards to wind energy. Denmark has deployed different laws since the 1970s to promote the development of RES, with a clear focus on wind energy in particular. The measures taken in the 1970s and 1980s included tax exemptions for income from wind turbines, fixed feed-in-tariffs, guaranteed grid connection, purchase obligations and priority transmission for wind energy. Despite some volatile changes to the rules concerning the operation of RES in the late 1990s and early 2000s, the latest legal reform enacted with the Promotion of Renewable Energy Sources Act of 2009 ensures a larger fixed premium for wind energy, making RE cooperatives more attractive⁴³.

In addition to policies promoting RES development, Denmark also has a tradition of cooperative ownership, especially in the agricultural sector, and local energy activism (e.g. against nuclear power generation). Therefore, it is not surprising that Denmark has promoted local ownership of RES, particularly wind energy, by citizens, companies and cooperatives through targeted measures

⁴³ Bauwens, T. Gotchev, B. and Holstenkamp, L. What drives the development of community energy in Europe? The case of wind power cooperatives.

such as planning schemes and specific regulations⁴⁴. Even though Danish law prohibits cooperatives from owning wind turbines, other forms of ownership have occurred to facilitate local citizen participation. Communities tend to obtain common ownership through a legal partnership, which essentially operates in largely the same way as a cooperative. In these partnerships, individuals combine their funds to purchase turbines, with community wind projects financed completely through the sale of shares. Consequently, members of the partnership are protected against liability for debts beyond the resources of the partnership, which each member only liable for the amount they invested. This has helped overcome the risks of joint and several liability and helped encourage more citizen investments in local energy generation⁴⁵.

Most energy-related issues come under the ambit of the national government, which has continuously supported the development of community-owned energy projects. However, as previously mentioned, many government policies that previously helped to establish the wind industry (such as subsidies for set-up costs and previous feed-in-tariff laws) are no longer available. That being said, the remaining grid connection arrangement has ensured the ongoing success of community power in Denmark. This arrangement states that turbine owners are only required to pay for the connection to the closest technically feasible point of the grid⁴⁶. Consequently, energy utilities must finance any necessary expansion of the grid, rather than the owners of the specific turbine.

In Denmark, public participation is central to the wind power development scheme as local citizens have the option of purchasing wind power shares. According to the 2009 Promotion of Renewable Energy Sources Act '*any person who erects one or more wind turbines of at least 25m in height onshore, or offshore wind turbines established without a tendering procedure [...], shall, prior to commencement of erection, offer for sale at least 20 per cent of the ownership shares to the persons [...]*'⁴⁷ living within a 4.5 km radius of the turbine. Consequently, community energy generation in Denmark now occurs predominantly in partnership with energy utilities (co-owned community energy projects) rather than in fully private owned projects⁴⁸. This legislation has allowed communities to collectively invest in wind energy since the 1970s; as a result, by 2013, 70-80% of existing wind turbines were owned by communities, whilst the rate of RES generation owned by communities is now one of the

⁴⁴ Bauwens, T. Gotchev, B. and Holstenkamp, L. What drives the development of community energy in Europe? The case of wind power cooperatives.

⁴⁵ Hicks, J. and Ison, N. Community energy in Europe.

⁴⁶ Hicks, J. and Ison, N. Community energy in Europe.

⁴⁷ Promotion of Renewable Energy Act, Act, no. 1392 of 27 December 2008, Article 13: https://ens.dk/sites/ens.dk/files/Vindenergi/promotion_of_renewable_energy_act_-_extract.pdf (accessed 11 July 2017).

⁴⁸ Hicks, J. and Ison, N. Community energy in Europe.

highest in the world⁴⁹.

In conclusion, Denmark has a strong focus on renewable energy communities and a nurturing environment that allows it to be at the forefront of community energy generation in Europe. That being said, the majority of its policy relates solely to the establishment of wind power, with little mention of other forms of RE.

2.2.2 Germany

In Germany, like Denmark, there is strong and stable support for renewable energy, though it is more recent, with an official ‘energiewende’, or ‘energy transition’ introduced in 2010. National policy aims to promote both wind and solar power. The transition includes ambitious targets and measures (e.g. feed-in tariffs) aimed to promote renewable energy, energy efficiency and greenhouse gas reductions. This is complemented by strong policy and widespread public support for community ownership of RE generation⁵⁰. Even though there is no explicit policy support for community energy, apart from regional political support in finding and providing spaces for RES installations (e.g. roofs for solar power installations)⁵¹, as of 2012 approximately half of the RE capacity is installed under some form of community ownership⁵².

This surge in energy communities can be explained by several factors. Firstly, a combination of legal provisions and other developments have resulted in the remunicipalisation of the energy sector in some Laender. A large number of the concession contracts for managing electricity and gas distribution networks (the number of contracts is estimated at over 20,000) have been renewed in recent years, creating an opportunity for the remunicipalisation of these services and resulting in the establishment of over 70 new municipal power utilities⁵³. This has helped the network remain highly fragmented throughout the country, preventing a monopolisation of the energy network which has been seen in other countries, such as the ‘Big Six’ power companies in the UK⁵⁴.

Furthermore, local authorities in Germany benefit from a certain degree of

⁴⁹ Roberts, J, Bodman, F and Rybski, R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy.

⁵⁰ Simcock, N, Willis, R. and Capener, P. 2016, Cultures of Community Energy, International case studies.

⁵¹ Lucha, C. and Prahl, A. 2015, Cost and financing aspects of community renewable energy projects, Volume II: Case Studies-Germany.

⁵² Simcock, N, Willis, R. and Capener, P. 2016, Cultures of Community Energy, International case studies:

⁵³ Wagner, O. and Berlo, K. The wave of remunicipalisation of energy networks and supply in Germany – the establishment of 72 new municipal power utilities.

⁵⁴ Energy Cities, 2017, Local Energy Ownership in Europe: An exploratory study of social public initiatives in France, Germany and the United Kingdom.

autonomy and responsibility for local actions. Municipal autonomy and the ‘right to regulate all local affairs on their own responsibility’ is enshrined in German law. As a result, municipalities have considerable executive powers (for example, they are responsible for implementing a large part of national and EU legislation)⁵⁵. These powers are restricted by both the localisation principle and subsidiarity clause, which limits any activity of the local authority to the geographical area under its administration, and only allows local authorities to run a public service if they can do so as efficiently as a third party⁵⁶. However, the creation of new municipal companies in Germany has been cited as being crucial to the success of its community energy projects.

Energy communities partnering with local authorities can also benefit from available financing at preferential rates; for example, local authorities have access to long-term, inexpensive financing from the German public bank KfW or low-cost capital from institutional investors that search for low-risk investments. Finally, the Fukushima accident in 2011 generated the political momentum necessary to push for the implementation of the Energiewende legislative package as a means of shifting away from nuclear power. The Energiewende package promoted decentralised renewable energy by confirming that public support will back decentralised renewable energy, combined heat and power (CHP) and energy efficiency projects⁵⁷.

The definition of ‘energy community’ in Germany is broad. In some Laender this includes energy efficiency improvements for households⁵⁸. The most common form of community energy in Germany is that of a limited partnership between electricity utilities/wind developers and communities, with a limited liability company as a general partner. Generally, the limited liability company is the wind developer or utility, whilst the limited partnership is made up of the local people wanting to invest in wind power. The profit from the project is distributed according to the number of shares a stakeholder has purchased⁵⁹.

Germany is also embracing new and innovative approaches to support its Energiewende package. To address challenges in balancing the power supply of an evolving energy system, Germany is exploring the concept of virtual power plants. In its 2015 White Paper, the Federal Ministry for Economic Affairs and

⁵⁵ Energy Cities, 2017, Local Energy Ownership in Europe: An exploratory study of social public initiatives in France, Germany and the United Kingdom.

⁵⁶ Energy Cities, 2017, Local Energy Ownership in Europe: An exploratory study of social public initiatives in France, Germany and the United Kingdom.

⁵⁷ Energy Cities, 2017, Local Energy Ownership in Europe: An exploratory study of social public initiatives in France, Germany and the United Kingdom.

⁵⁸ Lucha, C. and Prahl, A. 2015, Cost and financing aspects of community renewable energy projects, Volume II: Case Studies-Germany.

⁵⁹ Hicks, J. and Ison, N. Community energy in Europe.

Energy considers virtual power plants and virtual storage units as innovative concepts that may play a crucial role in the so-called ‘electricity market 2.0’⁶⁰. Virtual power plants interconnect small, decentralised and usually privately-run RES power producers and storage facilities with utility companies, network operators and consumers. This allow small decentralised power producers to connect and sell their energy as one virtual power plant on the market. Operated by a central control unit, the virtual power plants coordinate power generation, storage and consumption in a certain place ensuring that a certain amount of electricity is fed into the grid at a certain time^{61 62}. For instance, the transmission network operators TenneT and sonnen use domestic storage systems and blockchain technology to stabilize the power grid in Germany. The cooperation of these companies in a virtual power plant allows RE to be stored in batteries in one place while the virtual power plant delivers energy from its available resources in other locations⁶³.

The success of community energy in Germany can be attributed to a number of factors including: a well-established environmental and alternative energy movement and a general tradition of forming cooperatives and other associations to achieve change at a local level; a high level of leadership and support from municipalities; and macro-level institutional factors such as the feed-in tariff system and the state-owned development bank, KfW. In addition, Germany is exploring innovative concepts such as virtual power plants that can facilitate the access of decentralised community-based RES generators.

2.2.3 Ireland

Ireland is one of the most energy-intensive countries per capita in Europe creating economic and geopolitical risks for the country⁶⁴. To address these risks, the country has developed a series of policies and measures to promote renewable energy and energy efficiency with a focus, albeit small, on energy communities.

Currently, community-owned renewable energy in Ireland is a small, but rapidly growing industry. Compared to the likes of Germany and Denmark, there is currently a limited number of community energy projects in operation. This has

⁶⁰ Federal Ministry for Economic Affairs and Energy, 2015, An electricity market for Germany’s energy transition, White Paper.

⁶¹ Leuphana University of Lueneburg, EnERgion: The generation, storage and marketing of renewable energy in the northern region: <https://www.leuphana.de/en/partners/innovation-incubator-lueneburg/sustainable-energy/energion.html> (accessed 25 June 2018).

⁶² Peeters, M. and Schomerus, T. 2014, Regional renewable energy: a string of legal and financial challenges.

⁶³ Intersolar Europe, Virtual power plants are developing into serious market contenders: <https://www.intersolar.de/en/news-press/news/news/virtual-power-plants.html> (accessed 25 June 2018).

⁶⁴ SEAI, 2016, Energy in Ireland 1990 – 2015.

been attributed to significant barriers which hinder the success of these groups and projects, and as a result community energy in Ireland represents a very small amount of overall energy generation and potential. For instance, the country currently lacks a national strategy for community energy. National energy policy⁶⁵ does not adequately consider the potential of community energy, and provides no clear steer to support community energy projects, groups, partnerships⁶⁶. Additionally, no rules facilitate the creation of energy cooperatives to provide a legal entity to energy communities⁶⁷.

However, a change in momentum has been seen in recent years, with Ireland's National Energy White Paper (December 2015)⁶⁸ and National Mitigation Plan (June 2017)⁶⁹ emphasising the role of citizens and communities in meeting energy targets for a low carbon future. Additionally, the Sustainable Energy Authority of Ireland (SEAI) advocates the Sustainable Energy Communities (SEC) Programme as one of the main pillars of for the climate action objectives⁷⁰.

Moreover, Energy Co-Operatives Ireland is working on the EU cooperative movement and supports RE cooperatives at every stage of their development by guiding them through the legal processes, advising them on their interaction with state agencies, introducing them to other cooperatives and helping them communicate their message locally and nationally⁷¹.

As of 2018, 24 communities across Ireland are now part of the SEAI's Sustainable Energy Communities network, a rapidly expanding national movement towards a cleaner energy future. The communities have committed to developing long-term energy plans with the assistance of SEAI. The network has doubled in size in 2017, as momentum gathers in the move to more sustainable energy systems⁷².

Therefore, although there has been a recent surge in community energy in Ireland compared to previous years, the general lack of uptake in comparison to other EU countries is apparent. There are several barriers which prevent

⁶⁵ For instance, the National Renewable Energy Action Plan, The National Energy Efficiency Action Plan, Government White Paper, Delivering a Sustainable Future for Ireland.

⁶⁶ Friends of the Earth Ireland, 2014, Community Energy Policy Position Paper.

⁶⁷ European Commission, 2017, Study on "Residential Prosumers in the European Energy Union", Ireland national report.

⁶⁸ Department of Communications, Energy and Natural Resources, 2015, Ireland's Transition to a Low Carbon Energy Future 2015-2030.

⁶⁹ Department of Communications, Energy and Natural Resources, 2017, National Mitigation Plan.

⁷⁰ Kirwan, N. 2018, Sustainable Energy Communities: Community action is key to tackling climate change.

⁷¹ European Commission, 2017, Study on "Residential Prosumers in the European Energy Union", Ireland national report.

⁷² SEAI, 2017, Over 120 communities nationwide now working with SEAI.

communities from developing their own projects, including access to funding and advice at initial project development stages and access to the power grid. Currently connecting to the National Electricity Grid for a local energy community is considerably long and costly⁷³.

2.2.4 Greece

The structure of the support regime for renewable electricity in Greece is changing. In January 2018, a new law on energy communities was voted in the Greek Parliament, which defines the role of citizens in the energy sector, and gives wide scope for energy communities⁷⁴. The law encourages citizens, local authorities and private and public agencies to participate in the production, distribution and supply of energy; essentially, it gives electricity consumers a possibility to become electricity producers. The main driver for reform is to bring Greece into compliance with the European Commission's Guidelines on State aid for environmental protection and energy for the period 2014–2020 (Guidelines)⁷⁵.

According to press coverage⁷⁶, the changes enable energy communities to produce, sell or self-consume electricity and thermal energy produced by RES or CHP. The law enables local energy communities to set-up ownership structures and prohibits the charging of fees to renewable energy communities that do not align with real costs.

Overall, the objective of the law is to enable citizens, municipalities and regions to directly participate in energy projects, particularly renewable energy projects. It also aims to ensure community energy projects do happen in the community by laying down requirements for the member of the community to be linked to the place of its headquarters⁷⁷.

There are reports that suggest some municipalities are already taking steps towards establishing local energy communities⁷⁸. It has been reported that Larissa, Thessaloniki and some municipalities in Athens are already preparing to use virtual net-metering and to develop plans that would provide free solar energy to households suffering energy poverty. The new provisions for virtual power sharing investments may be particularly important, as they can enable consumption to occur in a different location to where the energy is produced.

⁷³ Friends of the Earth Ireland, 2014, Community Energy Policy Position Paper.

⁷⁴ Greenpeace Greece & REScoop, 2018, Energy communities in Greece: new legislation.

⁷⁵ Assimakis, D. and Kitsilis, M., 2017, Shifting to auctions for renewable energy capacity in Greece.

⁷⁶ Balkan Green Energy News, 2017, 'Greek energy communities draft bill awaits ratification'.

⁷⁷ Greek Draft Law 'Energy Communities and other provisions', Article 2.

⁷⁸ Greenpeace Greece & REScoop, 2018, Energy communities in Greece: new legislation.

This is critical in parts of Greece where residents live in multi-apartment buildings and lack the space for micro-generation installations⁷⁹.

Therefore, although still in its early stages, with the broad definition of energy community and the possibility of virtual metering, the new law has the possibility of completely revolutionizing the ability of energy communities to form and operate in Greece. However, as the law has only recently been adopted, it is not yet possible to evaluate its impact.

2.3 Typical success factors and enabling framework conditions

The frameworks currently operating in the four countries studied clearly exemplify the opportunities and successes of local energy ownership initiatives. In particular, analysis of the success of both Denmark and Germany allows us to highlight key aspects that promote community energy.

First, a commitment to renewable energy acts as a concrete base for promoting community energy; the support for renewable energy in both Denmark and Germany is high within both the general population and at political level. Moreover, provisions to support the access to the grid of local energy communities with clear financial responsibilities for the community and the network operate as in Denmark can significantly facilitate the operation of local energy communities. Such a regulatory environment fosters the role of community energy, and encourages its growth in municipalities.

Additionally, a strong commitment to energy transition requires the identification of new opportunities for decentralised production and local projects. For this reason, ambitious local and national energy transition strategies can drive community energy projects. In addition, an energy transition to a system with more decentralised RES installations requires innovative approaches to ensure the balancing of the grid. Innovative approaches such as virtual power plants, storage units and net-metering are being explored by countries such as Germany and Greece and have the potential to foster the development of more local energy projects by ensuring their successful integration into the energy market.

Furthermore, the setting of targets for community energy ownership and co-ownership are a very successful way of focusing government policy and

⁷⁹ Greenpeace Greece & REScoop, 2018, Energy communities in Greece: new legislation.

providing security for investors. In Denmark, the Promotion of Renewable Energy Act necessitates developers to offer ownership shares of wind projects to the local community, for instance, 20% of overall ownership shares of wind projects larger than 25 m tall to eligible persons entitled to make an offer, whilst providing preferential right to residents within 4.5 km to buy the first 50 shares, and the remaining shares offered to residents that reside in the local municipality. In addition, setting some minimum requirements about the local ownership of community energy as proposed in the new law on energy communities in Greece has the potential to significantly facilitate and promote the development of local energy initiatives while ensuring benefits accrue to the local community.

Last but not least, partnering local energy communities and local authorities can offer a variety of benefits and enhance local RES projects. Usually local authorities are responsible for land use planning and can thus authorize RES projects on their territory or provide space in municipal buildings and lands for installation of RE generators (e.g. solar panels)⁸⁰. Local authorities also play an important role in engaging local stakeholders and rallying support for RES projects⁸¹. Local authorities may also help de-risk local energy community projects by either providing some investments themselves or helping the local community secure external funding for their project⁸². Finally, an increasing number of EU cities and municipalities are joining voluntary initiatives such as the Covenant of Mayors that promote the development and implementation of sustainable energy plans at the local level. The commitment to such initiatives and voluntary targets might create a demand for more local RES projects.

2.4 Typical obstacles

The reasons and opportunities that motivate local authorities to embark on community energy projects are multiple: revitalising the local economy, creating a close connection with citizens, managing local public services in a more integrated way, fostering cooperation and partnerships with other players, accessing new markets, etc. However, these endeavours also come with risks, and, although the frameworks currently operating in the countries studied clearly exemplify the opportunities and successes of local energy ownership initiatives, they also include a number of barriers that must be considered.

⁸⁰ Peeters, M. and Schomerus, T. 2014, Regional renewable energy: a string of legal and financial challenges.

⁸¹ European Economic and Social Committee, 2016, Prosumer Energy and Prosumer Power Cooperatives: opportunities and challenges in the EU countries, Opinion TEN/583.

⁸² Hanna, R. 2017, Community Renewables Innovation Lab, Energy Transition Platform Policy Briefing.

The first barrier which is prevalent across the Member States analysed relates to the legal standing of community energy, i.e. the constraints imposed by national legal frameworks that limit the conditions under which an energy community can be formed and operate. Specifically, securing access to the national electricity grid for community energy projects is vital. Taking Ireland as an example, at present the costs, delays and uncertainty associated with connection to the grid represents a major barrier for community groups in developing community energy projects. Rules about the operation and connection of RES in general can also affect the development of RE communities as e.g. balancing responsibilities and permitting procedures for RE generators can be costly and might sometimes present a challenge for small energy communities (for further details see section 4). Additionally, the extensive powers granted to local authorities in Germany by the national law is cited as being crucial for the success of community energy in the different Laender. For local energy communities to develop Member States should adopt clear definitions and rules that govern their activities while keeping some flexibility and not being too restrictive in order to allow the various models of local energy ownership to flourish⁸³.

Secondly, finance for community energy projects is often one of the biggest barriers that a community group must overcome. In practice, it is particularly difficult for communities to secure first round financing to bridge the gap between feasibility and planning stages. Even when upfront investment subsidies are available, this financial support is often time-limited⁸⁴. The availability of loans on preferential rates from public banks such as KfW in Germany is one approach to support the start-up of local community driven energy initiatives. Other options include the use of innovative financing approaches such as crowd funding or public-private partnerships with local authorities and/or private organisations⁸⁵.

Finally, political support must be present to enable the legal and economic conditions that allow community energy to flourish. Linking community energy projects with overarching policy objective can help secure support stakeholders and citizens.

⁸³ Roberts, J, Bodman, F and Rybski,R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy.

⁸⁴ Hanna, R. 2017, Community Renewables Innovation Lab, Energy Transition Platform Policy Briefing.

⁸⁵ Hanna, R. 2017, Community Renewables Innovation Lab, Energy Transition Platform Policy Briefing.

2.5 Lessons for local energy ownership models

Local energy ownership models allow the existence of various forms of local energy communities where benefits are shared locally bringing communities closer to the concept of energy democracy. Nevertheless, the existence of such models is often hindered by lack of an enabling legal framework, or indeed, a prohibitive framework, and insufficient financial resources. Considering the typical success factors and obstacles identified in this section, we can outline several key conditions for the promotion of local energy ownership models in the EU:

- There should be a clear political commitment, either through binding policies or voluntary commitments e.g. in the framework of initiatives such as the Covenant of Mayors, to the development of RES and an energy transition with more decentralized RES producers connected on the market.
- There should be a clear legal framework that governs the establishment, functioning and access to the energy market for local energy communities.
- Local energy communities should have access to financing instruments that can support their investments or to partnership schemes that help them de-risk their investments.
- Synergies and partnerships between local energy communities and local authorities should be promoted.

Once the above-mentioned conditions are present, local energy communities can be set up in various forms, all of which offer different advantages and disadvantages as exemplified in the following table.

Table 1: Strengths and weaknesses of the different local energy ownership models

Local energy ownership model	Strengths	Weaknesses
Cooperative (community-owned social enterprise)	<ul style="list-style-type: none"> • Voluntary and democratic structure (typically one member = one vote) • Common economic, social and cultural goals can be met 	<ul style="list-style-type: none"> • Raising sufficient capital for investment can be a challenge • Lack of familiarity with RE and technical skills/ knowledge can be an issue
Community - local government hybrid model	<ul style="list-style-type: none"> • Local authorities can help de-risk the initial investment in projects, provide grants and 	<ul style="list-style-type: none"> • Local authorities vary in terms of their understanding of community energy • Inconsistent application of

Local energy ownership model	Strengths	Weaknesses
	collaborate to secure external funding <ul style="list-style-type: none"> Local authorities can provide practical planning support and share public land 	planning rules and consent across different local authorities can be challenging
Community - commercial developer hybrid model	<ul style="list-style-type: none"> Community acceptance of larger scale installations, which can offer larger returns on investment, increases Community organisations benefit from skills and investment of commercial developers 	<ul style="list-style-type: none"> Cultural and operational differences between community and commercial organisations can be difficult to overcome Communication barriers due to mutual lack of understanding and transparency can be challenging
Split ownership	<ul style="list-style-type: none"> This structure allows multiple owners of a community RES project on a single site where the community organisation owns one part Other parts might be owned by a commercial developer, utility, independent power producer or investment fund 	<ul style="list-style-type: none"> The community still needs to raise funds to construct or purchase part of the project The community is still responsible for operating, monitoring and maintaining their equipment

Source: Hanna, R. 2017, Community Renewables Innovation Lab, Energy Transition Platform Policy Briefing.

3. Local and regional energy cooperatives

Energy cooperatives, and RE cooperatives in particular, are one of the most common forms of local energy ownership around the EU and they are gaining popularity. Therefore, it is important to understand the factors that can influence their formation and functioning in the different countries. This section provides an overview of local and regional energy cooperatives across the EU, relevant aspects of the regulatory environment and their socio-economic impacts together with examples of best practice.

3.1 Overview of local and regional energy cooperatives

While cooperatives have existed for a long time (e.g. in the agriculture sector) energy cooperatives are relatively new. Nevertheless, RE cooperatives are one of the most common forms of local energy ownership around the EU and they are gaining popularity. Even though there is no common legal definition for energy cooperatives so far (as noted in section 2.1 above there is an EU proposal for defining a ‘renewable energy community’, however it is not as specific as an ‘energy cooperative’ or a ‘RE cooperative’), there are various descriptions available. REScoop defines a RE cooperative as ‘*a business model where citizens jointly own and participate in projects for sustainable energy [including] both renewable energy (RES) and energy efficiency (EE)*’⁸⁶. The EESC describes an energy cooperative as ‘*a voluntary association with an unlimited number of members and legal personality [with] the objective [...] to meet the energy needs of its members*’⁸⁷. Like other cooperatives, energy cooperatives should follow some key internationally agreed cooperative principles:

- They are open and voluntary – cooperatives are voluntary organisations open to all persons able and willing to use their services and take on membership responsibilities.
- They entail democratic ownership – each member has a vote (‘one member-one vote’) and participate in setting the policies and decisions of the cooperative, some members are elected representatives.

⁸⁶ Creupelandt D. and Vansintjan, D. REScoop – Mobilizing European Citizens to Invest in Sustainable Energy, Deliverable 2.3 REScoop – Municipality Approach.

⁸⁷ European Economic and Social Committee, 2016, Prosumer Energy and Prosumer Power Cooperatives: opportunities and challenges in the EU countries, Opinion TEN/583.

- They allow economic participation – citizens can buy shares of the cooperative and get access to its products or services; members contribute equitably and democratically control the capital of the cooperative, they usually receive limited compensation and any surpluses are usually allocated to supporting the activities of the cooperative.
- They are autonomous and independent – cooperatives are not controlled by private companies or public authorities; if any agreements with other organisations are undertaken, they should guarantee the democratic control of the members over the cooperative.
- They provide information and training - cooperatives offer their members, representatives and employees education and training to ensure members can effectively contribute to the development of the cooperative, while offering information about the benefits of the cooperative to the general public.
- They collaborate with other cooperatives at local, regional, national and international levels.
- They care for the local community – cooperatives work for the sustainable development of their communities^{88 89}.

From an economic perspective, cooperatives are a different ownership model compared to conventional business organisations. Contrary to corporations or other businesses, which are owned by investors, cooperatives are owned by members who are often also the end-users of their services and the net earnings are usually divided proportionally among the members according to the volume of transactions rather than their shareholding. Furthermore, maximising the return on capital is usually not a key objective for cooperatives – there is cap to profit distribution even when part of the net income is allocated as a return on capital shares. Finally, cooperatives present a democratic governance structure where individuals have equal voting rights and no barriers to become members and join the cooperative⁹⁰.

⁸⁸ Creupelandt D. and Vansintjan, D. REScoop – Mobilizing European Citizens to Invest in Sustainable Energy, Deliverable 2.3 REScoop – Municipality Approach.

⁸⁹ Roberts, J, Bodman, F and Rybski,R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy.

⁹⁰ Bauwens, T. Gotchev, B. and Holstenkamp, L. What drives the development of community energy in Europe? The case of wind power cooperatives.

The existence of RE cooperatives is driven by several factors: support mechanisms for RE, planning policies, public attitudes and local culture. As RE cooperatives use RE technologies that are not yet competitive compared to traditional fossil fuel technologies, they rely on market-independent support mechanisms for RE, such as feed-in tariffs, in order to have predictable cash flows. Therefore, cooperatives are more often found where these support mechanisms are (or were previously) available. Planning and administrative procedures for the setting up of RE projects can affect the willingness of cooperatives to undertake such projects, especially if the complexity and cost of the procedures is not simplified for smaller projects. Less onerous administrative and planning procedures favour the existence of cooperatives. In addition, local attitudes towards the cooperative model in general and energy activism and the development of RE can either facilitate or hinder the emergences of RE cooperatives⁹¹.

3.2 Socio-economic impact of energy cooperatives

Energy cooperatives have several key socio-economic impacts, some of which are also shared with some of the other types of local energy ownership models. One of the most important impacts of energy cooperatives is their contribution to energy democracy and ‘energy citizenship’. While the former concept refers primarily to joint decision-making concerning energy (and climate) policies⁹², the latter refers more broadly to ‘*triggering a wider consciousness among citizens and communities of energy issues*’ that in turn enables them to contribute more broadly to the energy transition⁹³. This means not only that citizens and energy communities will become active consumers or prosumers but also that they will gradually start participating in the operation of distribution grids, energy supply and energy service companies for example through energy cooperatives⁹⁴. Such a democratisation of the energy system can ensure wider acceptance and uptake of RE projects⁹⁵ and lead to lower energy prices, especially for energy poor consumers⁹⁶.

⁹¹ Bauwens, T. Gotchev, B. and Holstenkamp, L. What drives the development of community energy in Europe? The case of wind power cooperatives.

⁹² Kunze, C. and Becker, S. 2014, Energy Democracy in Europe: A survey and outlook.

⁹³ Roberts, J, Bodman, F and Rybski,R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy, p. 4.

⁹⁴ Roberts, J, Bodman, F and Rybski,R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy, p. 4.

⁹⁵ Huybrechts, B. and Mertens, S. 2014, The Relevance Of The Cooperative Model In The Field Of Renewable Energy.

⁹⁶ Kunze, C. and Becker, S. 2014, Energy Democracy in Europe: A survey and outlook.

Providing energy at lower prices and addressing energy poverty are important benefits of energy cooperatives. In Belgium, the cooperative supplier Ecopower has received recognition for having the fairest billing structure of all suppliers in the Flemish region. In the UK, cooperatives provide low-cost or free electricity allowances to their members as a way of addressing fuel poverty in Brixton⁹⁷. In addition, cooperatives allow consumers to choose where their energy comes from and encourage them to install RE generators or undertake energy efficiency measures⁹⁸.

Energy cooperatives can also contribute to the local economy. They can directly create jobs in the local market, e.g. for the management and maintenance of the RE installations, and contribute to decreasing the capital outflow resulting from fuel imports, which can indirectly generate jobs in other sectors⁹⁹. Energy cooperatives and community projects are also more likely to contract local companies or use local banks and reinvest their profits in the community¹⁰⁰. Energy cooperatives aim to maximise local value and thus contribute to the social and economic welfare of local communities. More specifically, they can promote a ‘circular’ economy at the local level where RE profits are invested to promote other energy objectives such as building renovations and energy savings¹⁰¹.

Last but not least, energy cooperatives contribute to the achievement of climate, energy and environmental objectives. On the one hand, they can bring EU, national and regional policy goals closer to the citizens improving local acceptance for energy transition projects¹⁰². On the other hand, they can contribute to meeting EU, national or regional climate policy goals by contributing to the installation of RE capacity, energy savings and improvements of energy efficiency. For example, energy cooperatives support local authorities to meet their climate and energy objectives (including through commitments under the Covenant of Mayors initiative)¹⁰³.

⁹⁷ Community Power, Friends of the Earth and REScoop, The Benefits of Community Ownership.

⁹⁸ Community Power, Friends of the Earth and REScoop, The Benefits of Community Ownership.

⁹⁹ Kunze, C. and Becker, S. 2014, Energy Democracy in Europe: A survey and outlook.

¹⁰⁰ Community Power, Friends of the Earth and REScoop, The Benefits of Community Ownership.

¹⁰¹ Creupelandt D. and Vansintjan, D. REScoop – Mobilizing European Citizens to Invest in Sustainable Energy, Deliverable 2.3 REScoop – Municipality Approach.

¹⁰² Community Power, Friends of the Earth and REScoop, The Benefits of Community Ownership.

¹⁰³ Creupelandt D. and Vansintjan, D. REScoop – Mobilizing European Citizens to Invest in Sustainable Energy, Deliverable 2.3 REScoop – Municipality Approach.

3.3 Relevant aspects of the regulatory environment and the electricity market design

As a result of their specific ownership model and principles, energy cooperatives are different forms of energy stakeholders compared to traditional energy market actors such as large companies or utilities. Therefore, the regulatory framework should adequately consider and address their unique features in order to facilitate their existence and participation in the energy market.

At the EU level, the policies that have the largest impact on energy cooperatives are the Renewable Energy Directive (RED, Directive 2009/28/EC), the Energy Efficiency Directive (EED, Directive 2012/27/EU), the common rules for the IEM in electricity and gas (Directives 2009/72/EC and 2009/73/EC) and the state aid rules (Communication 2014/C 200/01¹⁰⁴). The RED and the EED aim to promote renewable energy and energy efficiency respectively and lay down provisions for the Member States to introduce appropriate support mechanisms, which can favour the creation of energy cooperatives by driving the overall energy transition in the EU. The IEM directives, on the other hand, govern the functioning of the common market and outline rules on, for example, access to the distribution networks, balancing obligations and permitting of energy suppliers. Therefore, the IEM directives affect the environment in which energy cooperatives operate and compete with incumbent market players^{105 106}. At the same time, the state aid rules can render some of the incentives (e.g. feed-in tariffs or other forms of compensation) for RE producers incompatible with the internal market¹⁰⁷. Section 4 explores in further details the potential gaps and inconsistency of the EU legislation concerning local energy communities.

In addition to EU policies, national legislation transposing or complementing EU legislation can further affect energy cooperatives. Nevertheless, the situation across the Member States varies. The following table presents an overview of the key regulatory measures that can affect prosumers and energy cooperatives in the EU Member States based on a review of the country reports produced for the Commission's 2017 '*Study on Residential Prosumers in the European Energy Union*'.

In most Member States there is no legal definition of a 'local energy

¹⁰⁴ European Commission, 2014, Guidelines on State aid for environmental protection and energy 2014-2020 (2014/C 200/01), 28.6.2014.

¹⁰⁵ Roberts, J, Bodman, F and Rybski, R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy.

¹⁰⁶ Interview with REScoop.

¹⁰⁷ Community Power and Client Earth, 2015, Promoting citizen participation in the energy transition: recommendations for an EU legal framework to support community energy.

community’, ‘energy cooperative’ or related concepts. The most relevant definitions that exist refer to self-consumptions and sometimes to prosumption/prosumers. So far only Poland and Greece appear to have defined energy communities or cooperatives in their legislation. In Poland¹⁰⁸, 2016 amendments to the RES Law introduced a definition of ‘energy cooperative’ that refers to cooperative generation activities from RE installations up to 10MW (for electricity), up to 30MW (for heat) and biogas installations up to 40 million m³. In Greece¹⁰⁹, the recently adopted energy communities law defines ‘energy community’ as a *‘cooperative solely aiming at promoting social and solidarity-based economy and innovation in the energy sector, addressing energy poverty and promoting energy sustainability, generation, storage, self-consumption, distribution and supply of energy as well as improving end-use energy efficiency at local and regional level’* (see section 2.2.4 for more details).

Even though Member States have opted for different types of RE support mechanisms, including feed-in tariffs, feed-in premiums or quota obligations¹¹⁰, all Member States provide some kind of incentives for RE installations, including tax incentives in some countries. However, only some countries have special provisions that allow priority access to the grid for renewable energy (and in most cases this still entails various fees for the producer) or a simplified procedure for the permitting of small RE installations as evidenced by the following table.

Table 2: Overview of the provisions concerning RE installations, prosumers and local energy communities in the Member States

Member State	Relevant definition in the energy legislation	Support mechanisms for RE installations	Tax incentives for RE installations	Priority access to the grid for RE installations	Simplified permitting procedures for RE installations
AT	Definition of ‘self-consumption’	✓		✓ fees for connection & for using the grid	✓ depending on whether the installation is for commercial use
BE	No definition available. The Flemish region has introduced the concept of ‘prosumer tariff’ but there is no legal definition of it. The Walloon region has developed the concept of ‘self-producer.’	✓	✓	✓ <i>Only fixed fee for connection; simplified procedure for installations smaller than 25kVA</i>	✓ for solar installations
BG	Definition for ‘energy for self-consumption’	✓	✓	✓ <i>simplified procedure for</i>	✓ for installations up to 30kW

¹⁰⁸ European Commission, 2017, Study on “Residential Prosumers in the European Energy Union”, Poland national report.

¹⁰⁹ Greek Draft Law ‘Energy Communities and other provisions’, Article 1.

¹¹⁰ REScoop, Report on financial barriers and existing solutions.

Member State	Relevant definition in the energy legislation	Support mechanisms for RE installations	Tax incentives for RE installations	Priority access to the grid for RE installations	Simplified permitting procedures for RE installations
				<i>installations smaller than 30kW</i>	
CY	Definition of 'self-production'	✓		✓ fees for the application & for using the grid	✓ no permit needed for installations up to 5MW
CZ	No definition available	✓		✓ fee for connection	✓ no permit needed for installations up to 10kW
DE	No definition available	✓	✓	✓	✓ no permit needed for PV installations on rooftops or mini CHP and heat pumps
DK	No definition available	✓		✓ <i>for wind turbines fees only for the connection to the closest technically feasible point</i>	
EE	No definition available. There is a general term of 'micro producers', which includes residential prosumers.	✓			✓ no permit needed for installations up to 100kW
EL	Definition for 'energy community' in the new 2018 law (see section 2.2.4)	✓	✓	✓ fee for connection	✓ no permit needed for installations up to 20kW
ES	Definition of 'self-consumption'	✓	✓		✓ for installations up to 30kW
FI	No official definition available but there are several relevant terms based on nominal or maximum output.	✓	✓		
FR	General definition of 'self-consumption' and definition of 'collective self-consumption'	✓	✓		✓ for some small installations (size depends on RES)
HR	Definition for 'prosumers'	✓		✓	✓ no permit needed for PV installations on buildings connected to the grid
HU	Definition for 'residential prosumers'	✓	✓		✓ no permit needed for 'household power plants'

Member State	Relevant definition in the energy legislation	Support mechanisms for RE installations	Tax incentives for RE installations	Priority access to the grid for RE installations	Simplified permitting procedures for RE installations
IE	No definition available but a definition of 'micro-generation' is provided by the Electricity Supply Board Networks.	✓		✓	✓ for micro-generators up to 6kW
IT	Definition of 'self-producer'	✓		✓ fees for the application & connection	✓ for installations up to 20kW
LT	Definition of 'consumer that produces electricity'	✓	✓	✓ <i>lower connection costs</i>	✓ for installations up to 10kW
LU	Definition of 'self-producer'	✓		✓ fee for connection	✓ no permit for installations up to 10MW
LV	Definition of 'autonomous producer'		✓		
MT	No definition available	✓		✓ <i>no fees for small installations</i>	✓ no permit for installations with total peak generation capacity of up to 1500 kVA
NL	No definition available	✓	✓		✓ no permit needed for household solar installations
PL	Definitions for 'prosumer' and 'energy cooperative'	✓	✓	✓ <i>no fees for 'micro-installations'</i>	✓ no permit needed for 'micro-installations'
PT	No official definition but the concept of 'producer-consumers' and 'self-consumers' have been used.	✓			✓ no permit needed for installations up to 1MW
RO	Provisional definition for 'prosumer' in the Energy Strategy 2016-2030) but it has not been approved by the Government yet.	✓		✓	✓ no permit needed for installations up to 100kW
SE	No definition available	✓	✓		
SI	Definition of 'prosumers'	✓			
SK	No definition available	✓			✓ for installations up to 10kW except wind turbines

Member State	Relevant definition in the energy legislation	Support mechanisms for RE installations	Tax incentives for RE installations	Priority access to the grid for RE installations	Simplified permitting procedures for RE installations
UK	No definition available	✓	✓	✓	✓ no permit needed for PV, CHP, wind or hydro generation rated up to 3.68kW (16A)

Source: National reports (except Greece) produced in support of the European Commission's 2017 'Study on Residential Prosumers in the European Energy Union' and Greek Draft Law 'Energy Communities and other provisions'.

3.4 Best practices

There are a growing number of energy cooperatives in the EU, notably in countries like Belgium, Denmark, Germany, France and Spain but increasingly also in other Member States. They perform different activities and provide a variety of services across the energy sector such as: self-production and consumption; production of renewable energy for export to the grid and retail supply; ownership or operation of storage facilities, micro-grids and other distribution infrastructure for electricity and district heating networks; provision of energy efficiency and other services; aggregate demand response and distributed generation of RE to provide flexibility services¹¹¹.

Successful energy cooperative share some key good practices that in turn help them overcome the various barriers and risks they might face:

- Organisational set-up – follow the internationally agreed cooperative principles and define objectives for the cooperative.
- Stakeholder involvement – involve citizens as shareholders and keep the local community and local authorities informed about the activities of the cooperative exploring possibilities for joint actions (e.g. with the local authorities).

¹¹¹ Roberts, J. 2018, Existing activities of renewable/energy communities - case studies.

- Financial organisation – manage the financial risks involved in running a cooperative by getting an insurance, outsourcing (e.g. technical maintenance) to service providers, and paying variable dividends to the members of the cooperative¹¹².

Energy cooperatives can face a range of barriers and risks, including:

- Bureaucracy and regulations - these are the main non-technical barriers for RES projects; navigating the bureaucratic procedures (e.g. permitting procedures, certification or other local rules for setting up RES projects) can be more difficult and time-consuming for small organisations compared to large energy companies.
- Changing regulations and support systems and differences across countries – this is a common barrier for the whole RES market but it affects more gravely small organisations that rely on RES support systems for their financing; in addition, differences between the national support systems and their consistency result in energy cooperatives flourishing in some Member States (e.g. Germany, Denmark) more than in others.
- Community opposition to certain types of renewable energy – this is another common barrier for the whole RES market as it can result in opposition to new RES projects; dealing with misinformation and effectively informing the local community can be another strain on small organisations' resources and time¹¹³.

The following sections present only some illustrative examples of energy cooperatives in the EU with the aim to show the variety of services that can be provided through the cooperative model and highlight best practices and lessons for other energy cooperatives.

3.4.1 Production of renewable energy

The majority of the energy cooperatives are engaged in energy production, usually from RES such as solar photovoltaic (PV), onshore and nearshore wind, micro-hydro or biomass, either for self-consumption or sale on the grid. When some energy communities are licensed retail electricity suppliers, they are also legally obliged to match their forecasted electricity output in real time or provide financial compensations for any imbalances. Usually to meet these balancing

¹¹² REScoop, REScoop 20-20-20 Best practices, Report I.

¹¹³ REScoop, REScoop 20-20-20 Best practices, Report I.

responsibilities energy cooperatives contract a third balancing responsible party, which can be costly and challenging for small RE operators¹¹⁴. Important success factors for RE-producing cooperatives can be the involvement of citizens as shareholders and the collaboration with local, regional or national authorities as exemplified by the following cooperatives.

Middelgrunden Wind Turbine Cooperative, Denmark

One of most famous examples of energy cooperatives is the Danish Middelgrunden Wind Turbine Cooperative¹¹⁵, formed in 1997. The cooperative partnered with the Copenhagen municipal utility to build 20 wind turbines (2MW capacity each), off the shore of Copenhagen that started operating in 2000. The cooperative owns half of the turbines, while the other 10 are owned by DONG Energy – the private energy company that evolved from the original municipal energy utility. The Middelgrunden Wind Turbine Cooperative has over 8,500 members who mostly live in or around Copenhagen and own the 40,500 shares of the cooperative. The cooperative is organised as a partnership where each partner has one vote, regardless of the number of shares. There is also one wind turbine called the 'children's wind turbine' for which shareholders' children vote on their behalf and learn about the cooperative decision-making process. In addition, the cooperative receives support from the Danish association of owners of wind turbines ('Danmarks Vindmølleforening'). This association has successfully lobbied the national government to create favorable conditions for the expansion of wind energy¹¹⁶.

Combrailles Durables, France

Combrailles Dubraille cooperative in France has 170 members, it began as an association to promote renewable energy before it grew to own several PV installations and explore the opportunities for installing a wind energy project. At the start, the cooperative collaborated with the municipality to put a PV installation on the roof of a municipal school. The cooperative then used the knowledge and experience from this first project to install further PV capacity in a neighbouring village. In the course of its projects the cooperative learnt that involving the local community, including by offering shares, enhanced the support for the RES projects and tapped into the expertise and professional networks of the members. In addition, by starting with a smaller project the cooperative had an opportunity to gain knowledge and expertise before embarking on a larger project¹¹⁷.

To build financial stability, renewable energy generation might not be the first activity of an energy cooperative, but something that is only pursued a later stage of the cooperative's development once it has achieved more financial maturity, as evidenced by the Som Energia cooperative in Spain.

¹¹⁴ Roberts, J. 2018, Existing activities of renewable/energy communities - case studies.

¹¹⁵ Middelgrunden Wind Turbine Cooperative: <http://www.middelgrunden.dk/middelgrunden/?q=en/node/35> (accessed 12 July 2017).

¹¹⁶ Hoeschele, W. 2017, Danish Energy Cooperative Lets Consumers Collectively Build Wind Turbines.

¹¹⁷ REScoop, REScoop 20-20-20 Best practices, Report I, pp.34-35.

Som Energia, Spain

Founded in 2010, Som Energia is the first RE cooperative in Spain, which grew quickly and gained over 6,000 members in only two years. An important success factor for the cooperative is its financial sustainability secured through a simple business model at the beginning and the participation of volunteers. The cooperative started by selling RE sourced from third parties to its members using a low-cost web-based system for its operations. Even though obtaining a permit to operate and sell on the public energy system was not very costly, it was time consuming and complicated. Over time, the cooperative obtained some RE projects that had already secured feed-in tariffs and invested in its own RE capacity, usually small-scale projects close to their members¹¹⁸.

3.4.2 Provision of district heating

Some energy cooperatives are also engaged in the provision of heating or CHP, often from biomass (e.g. woodchips) but also from solar thermal or ‘waste’ heat from large electrical power plants. Key aspects that cooperatives aiming to produce and sell heat should consider are the readiness of consumers to source their energy from a cooperative (some consumers may be reluctant to switch from a larger district heating provider), the availability of local resources and the possibility to use different technologies. The availability of other technology options can help hedge against various risks including natural catastrophes that can affect the biomass supply or regulatory risks related to RES support schemes¹¹⁹.

Bioenergy village (Bioenergiedorf) Heubach, Germany

In the village of Heubach, the local ‘bioenergy village’ cooperative owns a biomass CHP generator (gasifier) that supplies 70 houses with their heat. The energy is produced through an innovative wood gasification technology that supplies the base load of the local heating systems and feeds bio-electricity into the power grid. The 86 members of the cooperative, which include a local kindergarten, town hall and apartment buildings, are also its customers. The project benefitted from a loan provided by the regional branch of the national development bank (KfW), subsidies from the local government and the EU. In addition, steady cash flows are ensured thanks to a 20-year guaranteed price for the electricity and the sale of power and heat to the local consumers¹²⁰.

3.4.3 Operation of distribution networks

A small number of energy cooperatives also own and/or operate power distribution systems or district heating networks. In most cases, these are very old rural area cooperatives that created the networks in the early 20th century. As such cooperatives tend to be small, they are exempted from EU unbundling rules, which required energy suppliers to be separated from operators of distribution networks. A few energy cooperatives also became owners and/or

¹¹⁸ REScoop, REScoop 20-20-20 Best practices, Report I, pp.39-42.

¹¹⁹ REScoop, REScoop 20-20-20 Best practices, Report II.

¹²⁰ REScoop, REScoop 20-20-20 Best practices, Report II, pp.16-17.

operators of their local networks after winning concession tenders¹²¹. An important success factor for cooperatives that wish to own and operate local distribution networks is securing the necessary capital.

ElektrizitätsWerke Schonau (EWS), Germany

EWS Schonau was set up by a local energy cooperative in order to purchase the local grid in 1991 before the energy market was liberalised. Even though the organisation faced different obstacles, such as a strong and influential incumbent company, some local opposition and insufficient financial resources, EWS managed to raise enough finance after a public fund-raising campaign and finalised the purchase of the grid in 1997. At a time when there were no support mechanisms for RE or prosumers, EWS sought to provide its customers not only with energy but also with the opportunity to sell their electricity on the grid with guaranteed access and feed-in tariffs. With time, EWS grew and now owns also the gas network of Schonau and Wimbach, the grids in eight neighbouring villages and some generation capacity. EWS supplies the electricity for about 137,000 people and the gas for around 8,500 people¹²².

E-Werk Prad Genossenschaft, Italy

Founded in 1926 in the municipality of Prato allo Stelvio in Bolzano-Bozen Italy, the E-Werk Prad cooperative wanted to supply the local area with electricity. The cooperative raised a bank loan to build their first hydropower plant. Over time, the cooperative expanded its activities and now produces power from hydro-energy, wind, solar and biogas and owns a district heating network to transport the heat from the biogas. The cooperative supplies power and heat to around 1,200 members. In addition, the cooperative buys energy from local citizens who own RE installations. To deal with the growing share of PV in the energy mix, E-Werk Prad is exploring different storage options and a control network based on a smart grid system¹²³.

3.4.4 Provision of energy efficiency or other energy services

Some energy cooperatives provide a range of services to their customers from supply of renewable energy, to funds and advice about undertaking energy efficiency measures. While some energy cooperatives are dedicated to energy saving services, others use profits from RE generation to fund energy efficiency measures among their members or address energy poverty¹²⁴.

Energie ID, Belgium

The Ecopower energy cooperative in Flanders, Belgium, provides its members and customers not only energy but also a service for evaluating their energy consumption. Energie ID is an online tool that allows members to observe their consumption in real time, as well as the compare their consumption over time based on historical data. Through this service the cooperative can identify energy efficiency needs and advise its members via a social media platform¹²⁵.

¹²¹ Roberts, J. 2018, Existing activities of renewable/energy communities - case studies.

¹²² REScoop, REScoop 20-20-20 Best practices, Report I, pp.60-62.

¹²³ REScoop, REScoop 20-20-20 Best practices, Report I, pp.63-64.

¹²⁴ Roberts, J. 2018, Existing activities of renewable/energy communities - case studies.

¹²⁵ Roberts, J. 2018, Existing activities of renewable/energy communities - case studies.

Coopem, Belgium

As a part of its Covenant of Mayors commitments, the Belgian city of Mouscron set up a cooperative together with its citizens called 'Coopem' (Cooperative Energy of Mouscron). The majority of the cooperative is owned by the citizens while the city has a 15% share. The cooperative aims to provide attractive solar energy investment opportunities to its inhabitants. It helps households install solar PV on their roofs by advancing the payment of regional solar energy subsidies, which are otherwise paid over five years, and handling the technical and administrative process of installation. The cooperative also targets local businesses by offering them a leasing plan for solar PV panels and selling green certificates to finance the initial investments¹²⁶.

Repowering London, UK

Repowering London is a not-for-profit organisation that supplies renewable energy while also financing energy efficiency measures and combating energy poverty among its customers. Through solar energy projects in social housing in Brixton, the organisation feeds part of its electricity to the grid benefitting from feed-in tariffs. The rest of the electricity is provided to the housing estates at discount prices in order to address the energy poverty of the inhabitants. In addition, 20% of the total net profits are invested in the Community Energy Efficiency Fund (CEEF), which promotes and finances low-cost energy efficiency measures¹²⁷.

RE cooperatives are also testing new energy service activities such as virtual mini-grids, virtual power plants and energy storage as well as the use of new technologies such as blockchain for peer-to-peer energy trading¹²⁸.

3.5 Lessons for energy cooperatives

Energy cooperatives are focused on providing local community benefits rather than generating profits for their members, which is almost impossible when competing with larger incumbent companies on the energy market. Like other local energy ownership models, the success of energy cooperatives is greatly dependent on political commitment to RES development, a clear legal framework at both EU and national level and access to financing (see section 2 for more details). The illustrative examples of energy cooperatives presented above show a number of additional lessons that can be useful for cooperative initiatives across the EU:

- Cooperation with local and regional authorities (LRAs) – collaborating with public authorities can facilitate the access to finance needed for cooperative investments and secure wider acceptance and support for the cooperative projects.

¹²⁶ Energy Cities, Cities' actions: Mouscron's community energy model.

¹²⁷ REScoop, REScoop 20-20-20 Best practices, Report II, pp.21-23.

¹²⁸ Roberts, J. 2018, Existing activities of renewable/energy communities - case studies.

- Involvement of the local community – when local citizens are involved and/or participate in the cooperative, they are not only more likely to support the activities of the cooperative, but they can also provide expertise and knowledge.
- Starting small and keeping costs low – before energy cooperatives invest in bigger projects, it might be a good idea to start with a smaller project or service that will keep the costs low and allow the cooperative to gain knowledge and expertise.
- Exploring different funding options – energy cooperatives should explore all available incentives for RES development together with options for public or private bank loans.
- Exploring new opportunities – energy cooperatives should not be afraid to explore new opportunities provided by technology development and emergence of new services.

4. Analysis of relevant EU legislation

As outlined in section 3.3, the most relevant EU legislation for energy cooperatives and other forms of local energy communities are the energy legislation and the State aid guidelines. As we are reaching the deadline for the EU 2020 climate and energy framework and the 2020 targets, EU energy legislation is undergoing a revision process. While providing a brief analysis of the current provisions, the rest of this section focuses primarily on the proposals for updates of the EU energy legislation that are likely to influence the development of local energy ownership models for years to come.

4.1 Current legislation

The RED (Directive 2009/28/EC) and the EED (Directive 2012/27/EU) are two key instruments for implementing the EU 2020 climate and energy policy framework. Together they promote the overall development of renewable energy and investments in energy efficiency and can thus stimulate the emergence of RE or other energy cooperatives. Nevertheless, they do not currently contain specific provisions for energy communities or cooperatives. The RED acknowledges the role of small and medium-sized enterprises and the emerging roles for consumers and requires Member States to ensure simplified authorisation procedures for smaller RE installations¹²⁹. The EED requires Member States to encourage simplified authorisation procedures for micro-cogeneration units for individual citizens and installers¹³⁰. Both directives promote the development of information, awareness-raising, guidance and training programmes for citizens on the benefits and practicalities of installing RE and undertaking energy efficiency measures and generally foresee both participative and leadership roles for LRAs. However, none of the two directives explicitly recognise prosumers or energy communities or provides a definition or guidelines on what they are, which is a significant gap in the current EU legislation¹³¹.

This lack of specific treatment of community energy at the EU level and its common inclusion under the umbrella of ‘small’ projects result in an unfavourable framework for the development of community energy. On the one hand, the lack of a common understanding of what community energy is results

¹²⁹ RED, recitals 43, 54 and Article 13.

¹³⁰ EED, Article 15.

¹³¹ Community Power and Client Earth, 2015, Promoting citizen participation in the energy transition: recommendations for an EU legal framework to support community energy.

in fragmented national regulatory frameworks and a general lack of understanding what the needs of energy communities are (e.g. for access to finance, connection to the grid, administrative burden). On the other hand, the oversimplification of ‘small’ RE projects leads energy communities with installed capacity above a certain threshold to experience additional difficulties and lack of support (e.g. larger projects may not be eligible for feed-in tariffs)¹³².

The IEM directives (Directives 2009/72/EC for electricity and 2009/73/EC for natural gas) are some of the main instruments for implementing the IEM policy across the EU. They outline common rules for the market, for example, on access to the distribution networks, balancing obligations and permitting of energy suppliers. However, they have been criticised for not being sufficiently aligned with the decarbonisation agenda and the specific needs and features of RES. The rules of the IEM directives can negatively affect some new, smaller or non-traditional energy system actors resulting in their exclusion from the energy market. For instance, the principles of equality and non-discrimination can result in contradictory treatment and eventual exclusion of energy community projects. The principle of non-discrimination suggests that all potential ‘system users’ have the right to non-discriminatory access to the energy system. The principle of equality implies that similar network users are treated similarly and generally aims to prevent groups or companies from preventing the entrance of competitors on the market. Therefore, acknowledging that energy communities are different types of actors and are in sufficiently different positions or situations than traditional energy market actors, would result in their equal treatment, through special measures to overcome the unique barriers they face, being deemed discriminatory. Community energy is sufficient distinct from traditional energy market participants and can thus warrant different treatment in accessing the grid¹³³.

In addition, the State aid guidelines (Communication 2014/C 200/01¹³⁴) aim to ensure fair competition across the internal market by preventing Member States from providing economic advantages to certain activities that distort competition. Even though some support mechanisms for renewable energy can be compatible with competition in the internal market, EU policy makers are moving towards market-based approaches and the abolition of RE subsidies. The latest ‘Guidelines on State Aid for Environmental Protection and Energy’¹³⁵

¹³² Community Power and Client Earth, 2015, Promoting citizen participation in the energy transition: recommendations for an EU legal framework to support community energy.

¹³³ Community Power and Client Earth, 2015, Promoting citizen participation in the energy transition: recommendations for an EU legal framework to support community energy.

¹³⁴ European Commission, 2014, Guidelines on State aid for environmental protection and energy 2014-2020 (2014/C 200/01), 28.6.2014.

¹³⁵ European Commission, 2014, Guidelines on State aid for environmental protection and energy 2014-2020 (2014/C 200/01), 28.6.2014.

favour competitive bidding processes that are open to all energy producers based on non-discrimination and technology neutrality, and therefore discourage fixed feed-in tariffs that are not linked to market prices¹³⁶. This trend disproportionately affects community energy projects that have limited financial resources and rely on stable and long-term support for their steady cash flows. While allowing for some exemptions concerning small-scale RE installation is seen as positive, it does not adequately reflect the scope of community energy and might exclude community projects above a certain threshold. The limitation to provide either investment or operating aid, but not both, can be good for limiting the support received by large RE projects. However, it could be a hurdle for community energy projects that face challenges both at the inception/planning and operation phases. In addition, local energy communities might face difficulties adequately participating in a competitive bidding process due to their limited financial and human resources and, in many cases, lack of choice of location for their projects¹³⁷.

Even though the current legislative framework can foster the development of community energy projects as part of the overall energy transition, it does not explicitly recognise their role and specific needs¹³⁸. For instance, energy cooperatives do not aim to generate profits and might face challenges in accessing finance, while stringent rules about access to the grid may make it more costly for them to sell their energy. All these aspects necessitate that energy cooperatives are supported and offered incentives, which may be not in line with the State aid guidelines¹³⁹. Therefore, the different instruments of the EU energy policy (RED, EED, IEM) and the state aid guidelines should be consistent and focused on addressing the specific barriers non-traditional market actors (e.g. cooperatives, housing associations, energy service companies, prosumers) can face¹⁴⁰.

¹³⁶ Community Power and Client Earth, 2015, Promoting citizen participation in the energy transition: recommendations for an EU legal framework to support community energy.

¹³⁷ Community Energy, 2014, Response to Consultation on draft guidelines on environmental and energy aid for 2014-2020.

¹³⁸ Roberts, J, Bodman, F and Rybski, R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy.

¹³⁹ Interview with REScoop.

¹⁴⁰ Community Power and Client Earth, 2015, Promoting citizen participation in the energy transition: recommendations for an EU legal framework to support community energy.

4.2 Post-2020 outlook

The ongoing revision of the EU energy legislation¹⁴¹ in view of its 2030 climate and energy commitments and the implementation of the Energy Union offer an opportunity to define a clearer role and framework for the participation of energy communities in the energy system. While all proposals can affect local energy communities, the most relevant proposals are those for a new RED and new IEM Directive for electricity.

The proposal for a new RED (COM(2016) 767 final¹⁴²) contains provisions that aim to facilitate the participation of individual prosumers and energy communities in the energy system. For example, it promotes the establishment of ‘one-stop-shops’ for the permitting procedures for RES projects and time limits for the maximum period the permitting process takes (Art. 16), together with a simple notification to Distribution System Operators (DSOs) for small RE projects (Art. 17). In addition, the new RED strives to enable consumers to produce and self-consume energy individually or collectively (e.g. in multi-apartment buildings) and ensure they are remunerated for the power they feed into the grid (Art. 21), it also provides a definition for a ‘renewable energy community’ and empowers energy communities to participate in the energy market (Art. 22)¹⁴³.

The proposal for a new IEM Directive for electricity (COM(2016) 864 final/2¹⁴⁴) recognises the role energy communities can have in the energy transition, provides a general definition of a ‘local energy community’ (Art. 2, for full definition see section 1) and requires that Member States provide an enabling framework and ensure that local energy communities have access to the energy system (Art. 16)¹⁴⁵.

In June 2018, the European Council and the European Parliament reached an agreement about the final text of the revised RED¹⁴⁶ and now the Directive is

¹⁴¹ European Commission, 2016, Commission proposes new rules for consumer centred clean energy transition: <https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition> (accessed 17 July 2018).

¹⁴² European Commission, 2016, Proposal for a Directive on the promotion of the use of energy from renewable sources (recast), COM(2016) 767, final.

¹⁴³ European Commission, 2016, Proposal for a Directive on the promotion of the use of energy from renewable sources (recast), COM(2016) 767, final.

¹⁴⁴ European Commission, 2017, Proposal for a Directive of the European Parliament and of the Council on common rules for the internal market in electricity, COM(2016) 864 final/2.

¹⁴⁵ European Commission, 2017, Proposal for a Directive of the European Parliament and of the Council on common rules for the internal market in electricity, COM(2016) 864 final/2, p.52 and pp. 68-69.

¹⁴⁶ European Council, 2018, Renewable energy: Council confirms deal reached with the European Parliament, Press Release 417/18, 27/06/2018.

ready for formal adoption¹⁴⁷. However, the trilogue or inter-institutional negotiations concerning the new IEM Directive for electricity only started in June 2018¹⁴⁸. The following sections discuss in more detail the main provisions in these proposals that can affect local energy communities together with the key positions of relevant stakeholders.

4.2.1 Acknowledging local energy communities and prosumers

These two proposals are welcomed by stakeholders and constitute key pieces of legislation for the development of local energy communities and prosumers in the post-2020 framework. They recognise the role of citizens, consumers and energy communities in the energy system and outline specific definitions and actions to promote their role. Complementing the more general definition of a ‘local energy community’ in the proposal for a new IEM Directive for electricity with a more specific ‘renewable energy community’ definition in the proposal for a new RED will ensure a common understanding of what a RE community is. This will allow a level-playing field across the EU and can stimulate Member States that do not have specific definitions or provisions on the topic to adopt some. Additionally, defining very concrete conditions for what constitutes a RE community will prevent abuse from any pseudo-local energy communities or energy cooperatives¹⁴⁹.

The definition of a ‘renewable energy community’ outlined in the Commission proposal for a new RED (Art. 22) is:

‘an SME or a not-for-profit organisation, the shareholders or members of which cooperate in the generation, distribution, storage or supply of energy from renewable sources, fulfilling at least four out of the following criteria:

(a) shareholders or members are natural persons, local authorities, including municipalities, or SMEs operating in the fields or renewable energy;

(b) at least 51% of the shareholders or members with voting rights of the entity are natural persons;

¹⁴⁷ European Parliament, 2018, Legislative Train Schedule: Resilient Energy Union with a Climate Change Policy, JD - Review of the Renewable Energy Directive 2009/28/EC to adapt it to the EU 2030 climate and energy targets, 20 July 2018.

¹⁴⁸ European Parliament, 2018, Legislative Train Schedule: Resilient Energy Union with a Climate Change Policy, JD - Review of directive 2009/72/EC on common rules for the internal market in electricity focusing on consumers' role, 20 July 2018.

¹⁴⁹ REScoop, 2017, What local energy communities need from clean energy package.

(c) at least 51% of the shares or participation rights of the entity are owned by local members, i.e. representatives of local public and local private socio-economic interests or citizen having a direct interest in the community activity and its impacts;

(d) at least 51% of the seats in the board of directors or managing bodies of the entity are reserved to local members, i.e. representatives of local public and local private socioeconomic interests or citizens having a direct interest in the community activity and its impacts;

(e) the community has not installed more than 18 MW of renewable capacity for electricity, heating and cooling and transport as a yearly average in the previous 5 year¹⁵⁰.

Nevertheless, the CoR believes that the definition should cover not only ‘local authorities’ but also ‘regional or local authorities’ and that the threshold for the size of the energy production of RE communities should not be too restrictive and propose that the definition allows 30 MW of renewable capacity instead of 18 MW¹⁵¹. In its opinion on the revision of the RED, the EESC stresses the importance of having clear and coherent definitions of energy communities and prosumers across the different legislative documents. In addition, the EESC emphasises the need for clear rules about the activities of local energy communities and prosumers, including simplified procedures for power storage, trading and self-consumption as a way of ensuring their full access to the market, and calls for the current state aid rules to be updated accordingly¹⁵².

Moreover, the coherence between the different definitions across the proposals can be improved to ensure RE communities are a sub-category of local energy communities and reflect the fact that local energy communities can also provide energy saving and energy efficiency services¹⁵³ and storage¹⁵⁴. In addition, the general definition should be clarified to ensure local energy communities have a level playing field to participate in all aspects of the energy system (i.e. not only energy production but also the possibility to own and operate distribution networks and/or community networks)¹⁵⁵. The general definition should also highlight the fact that local energy communities aim to provide local social,

¹⁵⁰ European Commission, 2016, Proposal for a Directive on the promotion of the use of energy from renewable sources (recast), COM(2016) 767, final, pp. 87-88.

¹⁵¹ European Committee of the Regions, 2017, Renewable energy and the internal market in electricity, Opinion: CDR 832/2017, Amendment 18.

¹⁵² European Economic and Social Committee, 2017, Revision of the Renewable Energy Directive TEN/622.

¹⁵³ REScoop, 2017, What local energy communities need from clean energy package.

¹⁵⁴ REScoop, 2017, The Market Design Initiative: creating a space for local energy communities.

¹⁵⁵ Energy Cities and REScoop, 2018, Committee of the Regions Opinion: Stakeholders consultation: "Models of local energy ownership".

economic and environmental benefits and not merely profit driven¹⁵⁶.

The new RED proposal also aims to outline some general principles for promoting local energy communities. Setting up ‘one-stop-shops’ for the permitting procedures for RES projects as proposed in the new RED is a significant improvement that can reduce the administrative burden faced by individual prosumers or local energy communities, especially if implemented properly at the national level. The proposal for a new RED also aims to ensure that RE communities are considered in the development of tenders and bidding processes. In order to be effective, the proposal should be clarified and require Member States to ensure RE communities can benefit from available support schemes (e.g. by designing tendering processes that take into account the special circumstances of small bidders, providing direct access to feed-in tariffs/premiums or reduced participation criteria and adding local benefit requirements to competitive bidding)¹⁵⁷.

The new RED text agreed by the Council and Parliament in June 2018 largely keeps the key provisions for the promotion of local energy communities (‘one-stop shops’ and simple notification procedures to DSOs) while providing further details and rules about their implementation. The agreed text also contains a revised definition:

“renewable energy community” means a legal entity;

i. which, according to 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 community;

ii. whose shareholders or members are natural persons, local authorities, including municipalities, or SMEs;

iii. whose primary purpose is to provide environmental, economic or social community benefits for its members or the local areas where it operates rather than financial profits’¹⁵⁸.

Compared to the original definition proposed by the Commission, the text resulting from the inter-institutional negotiations is clearer concerning the role

¹⁵⁶ REScoop, 2017, The Market Design Initiative: creating a space for local energy communities.

¹⁵⁷ REScoop, 2017, What local energy communities need from clean energy package.

¹⁵⁸ European Council, 2018, Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources–Analysis of the final compromise text with a view to agreement, Interinstitutional File: 2016/0382 (COD), p.55.

of RE communities to provide broader community benefits but lacks clarity concerning their ‘local’ ownership and explicit recognition of ‘regional’ authorities. Nevertheless, the provisions of Article 22 now clarify the activities, in which RE communities can participate, and state that Member State ‘*shall ensure that renewable energy communities are entitled [...] to generate, consume, store and sell renewable energy, including through power purchase agreements*’ and ‘*carry out an assessment of the existing barriers and potential of development of renewable energy communities in their territories*’¹⁵⁹.

A key condition going forward is ensuring coherence between the definitions and provisions in the RED and the new IEM Directive for electricity. For instance, some stakeholders propose that the general definition of ‘local energy communities’ in the new IEM Directive for electricity is clearer about the different governance structure of such communities compared to traditional market actors and their purpose to empower citizens. At the same time the definition of ‘active customers’ should clarify the activities in which customers can participate¹⁶⁰. The latter need is also stressed by the EESC in its opinion on electricity market design, which advocates for all consumers to have a right to generate, store and trade energy while local energy communities have a right to support, develop or rent community networks¹⁶¹.

4.2.2 Electricity market design

A key gap in the EU legislation is the lack of recognition that citizens and energy communities have a distinct legal and factual situation than other market participants. Having to operate under regulatory frameworks designed for a centralised energy system with large energy companies and being treated as large incumbent energy companies has resulted in both explicit and implicit disadvantage for energy communities. Therefore, the different instruments of the EU legislation should be coherent and ensure that the specific needs of energy communities are recognised so they can benefit from proportionate and different treatment when necessary and do not meet implicit barriers to their participation in the energy transition. For example, citizens and small RE producers (including energy communities when relevant) should be exempted from balancing responsibility, cumbersome licensing, permitting and other

¹⁵⁹ European Council, 2018, Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources-Analysis of the final compromise text with a view to agreement, Interinstitutional File: 2016/0382 (COD), pp.97-98.

¹⁶⁰ Energy Cities and REScoop, 2018, The new energy market design: how the EU can support energy communities and citizens to participate in the energy transition.

¹⁶¹ European Economic and Social Committee, 2017, Electricity Market Design, Opinion TEN/625.

administrative requirements, auctions or tenders for RE support¹⁶².

The proposal for a new IEM Directive for electricity provides an opportunity to bring clarity and promote the role of local energy communities further. The inter-institutional negotiations of the draft text started in June 2018. In its starting position, the European Parliament stresses the need to empower citizens' participation in the energy system while also integrating a larger share of RES and prosumers in the electricity system. It calls for the provision of incentives and market conditions for energy storage (including smart grids), participation of RES in balancing services and phasing out of support for mature RES¹⁶³. The general approach agreed by the European Council focuses on the needs to avoid cross-subsidies and discrimination of market participants, install smart meters, develop storage facilities and define the role of energy communities¹⁶⁴. In its opinion on the new RED and IEM policy documents, the CoR stresses the importance of LRAs in supporting consumers' participation in the energy system, the need for local energy communities to operate under clear rules and consumers to participate in demand responses¹⁶⁵. The EESC calls for consumer participation to include trade in electricity and for energy communities to operate as a basic supplier¹⁶⁶.

According to other stakeholders, the proposal for a new IEM Directive for electricity should ensure the common rules for the electricity market open the possibility for energy communities to own, operate or manage energy infrastructure such as local distribution networks or 'micro-grids'. More specifically, there is an opportunity to revise Article 15 on active customers to clearly define the right of active customers to participate in different activities across the energy system including self-consumption, demand response, storage and energy efficiency¹⁶⁷. Article 16 on local energy communities of the proposed Directive should be clarified concerning the practical implementation of the provisions of the Directive in relation to these communities. In addition, existing rules for priority access and dispatch of RE should be maintained rather than abolished as proposed. Furthermore, small RE producers should be allowed to bundle small loads and generation into bigger units or virtual power plants for

¹⁶² Energy Cities and REScoop, 2018, Committee of the Regions Opinion: Stakeholders consultation: "Models of local energy ownership".

¹⁶³ European Parliament, 2018, Common rules for the internal electricity market, Briefing.

¹⁶⁴ European Council, 2017, A more competitive and consumer-oriented internal electricity market – Council reaches general approach, Press Release 807/17, 18/12/2017.

¹⁶⁵ European Committee of the Regions, 2017, Renewable energy and the internal market in electricity, Opinion: CDR 832/2017, Amendments 23-25.

¹⁶⁶ European Economic and Social Committee, 2017, Electricity Market Design, Opinion TEN/625.

¹⁶⁷ Energy Cities and REScoop, 2018, The new energy market design: how the EU can support energy communities and citizens to participate in the energy transition.

sale on the market as a way to guarantee their market access^{168 169}.

So far, there is no proposal for revising the State aid guidelines after 2020. However, when this happens, the guidelines should be carefully reviewed to ensure they adequately address the needs of local energy communities and are coherent with the provisions agreed in the EU energy legislation.

¹⁶⁸ REScoop, 2017, The Market Design Initiative: creating a space for local energy communities.

¹⁶⁹ Energy Cities and REScoop, 2018, Committee of the Regions Opinion: Stakeholders consultation: "Models of local energy ownership".

5. Conclusions and recommendations

Even though most Member States do not have specific provisions for promotion of local energy communities, different forms of local energy ownership (e.g. energy cooperatives) have emerged and are developing across the EU. Local energy communities can offer a variety of benefits to the local community – from strengthened ownership and democratic participation in the energy market, to economic and environmental benefits for the local community and wider national or EU level. Nonetheless, local energy communities face a variety of challenges that can impede their operation and prevent the realisation of the local benefits, these challenges include:

- Conflicting policy priorities at different political levels and changing policies (e.g. investment incentives, support schemes);
- Market design rules that can discriminate against smaller actors and limit the ownership of local energy infrastructure;
- Lack of coherent national strategies and approaches for supporting community energy;
- Complex administrative and regulatory frameworks for new energy market participants;
- Lack of sufficient guidance and access to finance for local energy communities¹⁷⁰.

Therefore, the successful development of local energy ownership models in the EU will depend on:

- Stable policies and political support for renewable energy and energy transition¹⁷¹:
 - Stable policies and financial support mechanisms for RE (e.g. tax incentives, feed-in tariffs);
 - Rules that guarantee equal/non-discriminatory access to markets for local energy communities, not only for RE generation but also, for example, on ownership and management of energy infrastructure.

¹⁷⁰ Roberts, J. 2018, Energy communities in Europe: inspiring examples of citizen and municipal ownership & cooperation, presentation at the Committee of the Regions: Stakeholders Consultation on “Models of Local Energy Ownership”.

¹⁷¹ Based on the analysis in sections 2 and 3.

- Targeted promotion of local energy communities:
 - Acknowledgment in policies and legislation of their role and specific needs;
 - Establishment of rules/policies (e.g. public procurement) that promote local collaboration;
 - Adoption of simplified and proportionate regulatory and administrative procedures;
 - Easier access to technical information, guidance and finance¹⁷².

Building upon these findings and the analysis carried out in this report, the rest of this section outlines a set of recommendations for policy-makers to support the development of local energy communities. To the extent possible specific recommendations are provided for EU, national or local policy-makers.

5.1 EU policy-makers

Even though the success of EU energy policy depends to a large extent on the transposition and implementation by the Member States, EU legislation has an important role for setting a level-playing field and minimum requirements for the promotion of local energy communities and leading by example. While remaining flexible and allowing a variety of national approaches, EU legislation should also ensure local energy communities are guaranteed minimum support and a stable regulatory environment.

5.1.1 Maintain a stable policy environment for promotion of renewable energy

As evidenced by the examples in this report, local energy communities are often engaged in the production and sale of RE. In order to address the lack of sufficient finance and the risks in running their activities, local energy communities rely to a significant extent on public support mechanisms for RE. Therefore, policy-makers should maintain a stable policy framework for the promotion of RE, especially concerning financial support. With the latest State aid guidelines EU policy-makers are signalling a move away from non-premium based and market-independent support mechanisms (e.g. fixed feed-in tariffs) to more market-based support schemes and bidding processes, which might reduce

¹⁷² Roberts, J. 2018, Energy communities in Europe: inspiring examples of citizen and municipal ownership & cooperation, presentation at the Committee of the Regions: Stakeholders Consultation on “Models of Local Energy Ownership”.

the financial resources available to local energy communities or completely exclude them from the market through complicated requirements in the bidding processes. Unsurprisingly, some Member States have consequently abolished or reduced their feed-in tariffs or other mechanisms for supporting RE. Considering the EU commitments under the Paris Agreement and its ambitious 2030 and 2050 climate and energy policy goals, EU policy-makers should set an energy policy framework supporting this ambition that allows and encourages Member States to promote the development of RE in their territories. While the design of the specific support mechanisms remains a national competency, EU legislation and policy should not limit the possibilities for Member States to continue supporting RE with both market based and market independent financial support measures. To the extent possible the EU legislation should set a framework that does not allow retroactive or retrospective changes to the support schemes for RE¹⁷³.

5.1.2 Establish energy market rules that can support an energy transition in all aspects of the system

The proposals under the new clean energy package, including the proposals for a new IEM Directive for electricity and a new RED, are significant improvements to the current EU legislative framework. They recognise the importance of local energy communities and aim to guarantee their participation in the energy system not only as producers of energy but also as DSOs. While this is a good basis, the provisions should be clarified further to ensure consistent and effective implementation by the Member States. In addition, the rules should be expanded to cover the variety of services local energy communities provide such as energy efficiency and energy savings, storage, management of local distribution networks, aggregation and flexibility services. Furthermore, the rules and corresponding administrative procedures should be simplified as much as possible for small RE producers and local energy communities to ensure that explicit or implicit administrative burdens and costs do not discriminate against these market participants when they want to perform activities usually undertaken by large energy companies (e.g. network management, balancing). The rules should also not limit the possibilities for small individual RE capacities or local energy communities to aggregate their production and supply energy as a bigger unit, including through the use of novel approaches such as virtual power plants.

¹⁷³ Roberts, J. 2016, Prosumer Rights: Options for a legal framework post-2020.

Ensure consistency and coherence between different policies

While related, the conditions for promotion of renewable energy and the rules for the IEM are not set under the same policy instruments. Hence, it is paramount that the provisions in different EU legislative documents are coherent in their treatment and promotion of local energy communities and do not provide contradictory rules. For instance, the definitions for ‘local energy community’ proposed in the new IEM Directive for electricity and for ‘renewable energy community’ put forward in the new RED should be streamlined and coordinated to ensure RE communities are an example or sub-category of local energy communities, which can in turn perform a variety of services (as outlined in the previous recommendation). Moreover, the relevant EU energy legislation should acknowledge the specific features and needs of local energy communities and allow for special treatment and support where relevant. This should be adequately reflected by the EU state aid guidelines.

5.2 National policy-makers

In addition to transposing EU legislation and implementing the common energy policy, national policy-makers can define more specific national objectives and incentives for local energy communities.

5.2.1 Acknowledge the role and specific needs of local energy communities in relevant national policies and legislation

Important steps have been taken for recognising the role of local energy communities in the energy transition at the EU level through the definitions and provisions in the clean energy package proposals. Member States should follow suit and adopt similar definitions and provisions about local energy communities. What is more, national policy-makers might assess the potential contribution of such communities in meeting the national energy policy goals (e.g. for RE or energy efficiency) and define concrete objectives for the community energy. This can act as a driver for the creation and growth of local energy communities, especially in Member States where they are less common. Nevertheless, national policy-makers should be careful not to propose definitions or objectives that are too restrictive and may exclude some types of individual producers and consumers and local energy communities.

5.2.2 Establish policies and rules that promote local energy communities and local collaboration

Together with defining objectives for community energy, which can signal a strong political commitment and stability of the regulatory framework, national policy-makers can establish specific policies/rules for promotion of local energy communities. These rules can take different forms and target various aspects of the local energy ownership models. For instance, the local aspect can be promoted by setting some minimum requirements about the location of the citizens, cooperatives or other owners of community energy projects or by defining some guidelines about the location of the projects themselves. Rules can also be defined about the potential benefits to ensure they remain within the local community and support the social and economic development of the community rather than shareholders of the projects. Furthermore, national policies can also incentivise the sustainability and environmental aspects of community energy projects by, for instance, providing financial incentives (e.g. tax relief, investment aid) or reductions in the energy charges. They can also provide additional incentives for projects that are self-sufficient¹⁷⁴ or provide multiple services and benefits such as RE provision combined with storage, energy efficiency or measures for addressing energy poverty.

5.2.3 Adopt simplified and proportionate regulatory and administrative procedures for local energy communities

Administrative burdens and restrictive procedures and bureaucratic requirements can be significant barriers to the development local energy communities as they can pose extra costs and strain the limited human and financial resources of local energy communities. Therefore, national policy-makers should offer simplified and proportionate administrative procedures for small RE projects (e.g. led by individual citizens) and local energy communities. The requirements for setting up ‘one-stop-shops’ for the permitting procedures for RES projects proposed in the new RED are an important basis upon which Member State can build solutions tailored to their national context. An important aspect that Member State need to address in this regard are also the waiting times and duration of the various administrative procedures, which, if too long, can deter new local energy communities from undertaking any activities. Moreover, RE communities should not be required to participate in competitive bidding processes to receive operating support¹⁷⁵.

¹⁷⁴ Roberts, J, Bodman, F and Rybski, R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy.

¹⁷⁵ Roberts, J, Bodman, F and Rybski, R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy.

5.2.4 Ensure local energy communities have access to technical information, guidance and finance

As evidenced by the examples in this report successful local energy community projects and energy cooperatives secured and widely used the financial options available to them, be they public support systems or finance available through EU initiatives or commercial banks. National policy-makers can set up dedicated finance support schemes for local energy communities, to especially help them during the planning and set-up project phases. Such mechanisms can be e.g. grant-to-loans, guarantees or cheap credit opportunities¹⁷⁶. Additionally, national policy-makers should facilitate the access of local energy communities to technical information and guidance about setting up, financing and operating community projects.

5.3 Local and regional authorities

LRAAs can complement the EU and national policies for promoting local energy communities with further initiatives at the local level. LRAAs can also be important partners to and participants in different local energy community models.

5.3.1 Adopt local policies for the development of local energy communities

LRAAs can complement EU and national policies by adopting further local objectives for the contribution of local energy communities to local energy targets. For instance, many cities are already taking part in the Covenant of Mayors initiative and have established local sustainable energy and climate action plans (SECAPs). The preparation of the SECAPs is supported by guidance documents, advice and good practice examples provided by the Covenant of Mayors. Even though the guidance documents do not explicitly focus on local energy communities, they emphasise the importance of policies that foster the development of local energy projects, RES and energy efficiency and can provide examples of successful initiatives. Therefore, the SECAPs can motivate LRAAs to adopt policies for the development of RE and energy efficiency investments at the local level. Local energy communities can in turn help implement and fulfil the SECAPs or similar action plans by contributing to the share of renewable energy in the local economy or providing energy

¹⁷⁶ Roberts, J, Bodman, F and Rybski, R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy.

efficiency measures. Hence, LRAs should identify how local energy communities can best contribute to meeting local energy goals (and other goals, such as social policy goals) and establish mechanisms that support their development, including advisory services or provision of financial support.

5.3.2 Explore the opportunities to partner with or establish local energy communities

To strengthen the contribution of local energy communities to local policy goals LRAs can also partner with existing communities or establish new ones in cooperation with local citizens. LRAs and local energy communities are suitable partners as LRAs can provide space for RE projects, administrative support and access to capital at preferential rates, while local energy communities can provide technical expertise and oversee the operation of the projects. In addition, as seen in Germany, LRAs can also play a significant role in the energy transition by taking on more responsibilities for the local energy distribution networks by owning or managing them through subsidiary utility companies.

Annex 1: List of references

All weblinks listed below were functional as of 17 July 2018.

Literature and other publications:

Angel, J. 2016, Towards Energy Democracy: Discussions and outcomes from an international workshop, Amsterdam, 11-12 February, Workshop Report May 2016, available at: https://www.tni.org/files/publication-downloads/energy_democracy_workshop_report_for_web-2.pdf

Assimakis, D. and Kitsilis, M, 2017, Shifting to auctions for renewable energy capacity in Greece, Norton Rose Fulbright, April 2017, available at: <http://www.nortonrosefulbright.com/knowledge/publications/148943/shifting-to-auctions-for-renewable-energy-capacity-in-greece>

Balkan Green Energy News, 2017, ‘Greek energy communities draft bill awaits ratification’, 15 December 2017: <https://balkangreenenergynews.com/greek-energy-communities-draft-bill-awaits-ratification/>

Bauwens, T. Gotchev, B. and Holstenkamp, L. What drives the development of community energy in Europe? The case of wind power cooperatives, author post-print version available at: <https://infoscience.epfl.ch/record/222927/files/What%20drives%20the%20development%20of%20community%20energy%20in%20Europe.pdf>

Community Power, Friends of the Earth and REScoop, 2018, The Benefits of Community Ownership, available at: <https://uploads.strikinglycdn.com/files/23778f72-b5b5-47b8-98cd-dbbea3db3eb3/FoEE-REScoop.eu%20briefing%20on%20community%20energy%20-%20FINAL.pdf>

Community Power and Client Earth, 2015, Promoting citizen participation in the energy transition: recommendations for an EU legal framework to support community energy, April 2015, available at: <https://www.communitypower.eu/images/ClientEarthRecommendations.pdf>

Community Energy, 2014, Response to Consultation on draft guidelines on environmental and energy aid for 2014-2020, 14 February 2014, available at: <https://www.communitypower.eu/images/D23Annex1.pdf>

Creupelandt D. and Vansintjan, D. REScoop – Mobilizing European Citizens to Invest in Sustainable Energy, Deliverable 2.3 REScoop – Municipality Approach, REScoop MECISE project, available at: <https://uploads.strikinglycdn.com/files/41e2baa5-54ea-4121-b2c1-831ba41a78bf/REScoop%20MECISE%20-%20REScoop%20-%20Municipality%20Approach.pdf>

Department of Communications, Energy and Natural Resources, 2017, National Mitigation Plan, July 2017: <https://www.dccae.gov.ie/en-ie/climate-action/publications/Documents/7/National%20Mitigation%20Plan%202017.pdf>

Department of Communications, Energy and Natural Resources, 2015, Ireland's Transition to a Low Carbon Energy Future 2015-2030, December 2015: <https://www.dccae.gov.ie/documents/Energy%20White%20Paper%20-%20Dec%202015.pdf>

Energy Cities and REScoop, 2018, The new energy market design: how the EU can support energy communities and citizens to participate in the energy transition, August 2018, position paper provided by the Committee of the Regions

Energy Cities and REScoop, 2018, Committee of the Regions Opinion: Stakeholders consultation: "Models of local energy ownership", available at: <https://www.rescoop.eu/blog/models-of-local-energy-ownership-and-the-role-of-local-energy-communities-in?categoryId=381>

Energy Cities, 2017, Local Energy Ownership in Europe, An exploratory study of social public initiatives in France, Germany and the United Kingdom, June 2017, available at: http://www.energy-cities.eu/IMG/pdf/local_energy_ownership_study-energycities-en.pdf

Energy Cities, 2016, The new local flavor, No.44 Spring 2016, available at: http://www.energy-cities.eu/IMG/pdf/ecinfo_44_en_bd.pdf

Energy Cities, Cities' actions: Mouscron's community energy model, available at: http://www.energy-cities.eu/cities/cities_actions_detail.php?id=1781&lang=en

European Commission, 2017, Study on Residential Prosumers in the European Energy Union, prepared by GfK Belgium consortium under Framework Contract EAHC/2013/CP/04, main document available at: https://ec.europa.eu/commission/sites/beta-political/files/study-residential-prosumers-energy-union_en.pdf and national reports supporting the study

European Commission, 2017, Proposal for a *Directive of the European Parliament and of the Council on common rules for the internal market in electricity*, COM(2016) 864 final/2, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2016:0864:FIN>

European Commission, 2016, Proposal for a *Directive on the promotion of the use of energy from renewable sources (recast)*, COM(2016) 767 final, available at: <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:52016PC0767>

European Commission, 2016, Clean Energy For All Europeans, COM(2016) 860 final, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2016:0860:FIN>

European Commission, 2015, Energy Union Package, COM(2015) 80 final, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2015:80:FIN>

European Commission, 2014, Guidelines on State aid for environmental protection and energy 2014-2020 (2014/C 200/01), 28.6.2014, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014XC0628%2801%29>

European Committee of the Regions, 2017, Renewable energy and the internal market in electricity, Opinion: CDR 832/2017, available at: <https://cor.europa.eu/en/our-work/Pages/OpinionTimeline.aspx?opId=CDR-832-2017>

European Council, 2018, Renewable energy: Council confirms deal reached with the European Parliament, Press Release 417/18, 27/06/2018, available at: <http://www.consilium.europa.eu/en/press/press-releases/2018/06/27/renewable-energy-council-confirms-deal-reached-with-the-european-parliament/>

European Council, 2018, Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources-Analysis of the final compromise text with a view to agreement, Interinstitutional File: 2016/0382 (COD), Brussels, 21 June 2018, available at: <http://data.consilium.europa.eu/doc/document/ST-10308-2018-INIT/en/pdf>

European Council, 2017, A more competitive and consumer-oriented internal electricity market – Council reaches general approach, Press Release 807/17, 18/12/2017, available at: <http://www.consilium.europa.eu/en/press/press-releases/2017/12/18/a-more-competitive-consumer-oriented-internal-electricity-market-council-reaches-general-approach/>

European Economic and Social Committee, 2017, Revision of the Renewable Energy Directive TEN/622, available at: <https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/revision-renewable-energies-directive>

European Economic and Social Committee, 2017, Electricity Market Design, Opinion TEN/625, available at: <https://www.eesc.europa.eu/our-work/opinions-information-reports/opinions/electricity-market-design>

European Economic and Social Committee, 2016, Prosumer Energy and Prosumer Power Cooperatives: opportunities and challenges in the EU countries, Opinion TEN/583, available at: <https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/prosumer-energy-and-prosumer-power-cooperatives-opportunities-and-challenges-eu-countries>

European Parliament, 2018, Legislative Train Schedule: Resilient Energy Union with a Climate Change Policy, JD - Review of the Renewable Energy Directive 2009/28/EC to adapt it to the EU 2030 climate and energy targets, 20 July 2018, available at: <http://www.europarl.europa.eu/legislative-train/theme-resilient-energy-union-with-a-climate-change-policy/file-jd-renewable-energy-directive-for-2030-with-sustainable-biomass-and-biofuels>

European Parliament, 2018, Legislative Train Schedule: Resilient Energy Union with a Climate Change Policy, JD - Review of directive 2009/72/EC on common rules for the internal market in electricity focusing on consumers' role, 20 July 2018, available at: <http://www.europarl.europa.eu/legislative-train/theme-resilient-energy-union-with-a-climate-change-policy/file-jd-consumers-in-internal-market-in-electricity>

European Parliament, 2018, Common rules for the internal electricity market, Briefing, 4 June 2018, available at: [http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/595924/EPRS_BRI\(2017\)595924_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/BRIE/2017/595924/EPRS_BRI(2017)595924_EN.pdf)

Federal Ministry for Economic Affairs and Energy, 2015, An electricity market for Germany's energy transition, White Paper, July 2015, available at: https://www.bmwi.de/Redaktion/EN/Publikationen/whitepaper-electricity-market.pdf?__blob=publicationFile&v=7

Friends of the Earth Ireland, 2014, Community Energy Policy Position Paper, July 2014, available at: https://www.foe.ie/download/pdf/community_energy_policy_position_paper.pdf

Greenpeace Greece & REScoop, 2018, Energy communities in Greece: new legislation, March 7 2018, available at: <https://www.rescoop.eu/blog/energy-communities-in-greece-new-legislation>

Hanna, R. 2017, Community Renewables Innovation Lab, Energy Transition Platform Policy Briefing, November 2017, Secretariat The Climate Group, available at: https://www.theclimategroup.org/sites/default/files/downloads/communityrenewables_etp.pdf

Hicks, J. and Ison, N. Community energy in Europe, Embark Articles, available at: <http://www.embark.com.au/display/public/content/Community+energy+in+Europe;jsessionid=AF4D42381D601E5C3E167149DE9B77FC>

Hoeschele, W. 2017, Danish Energy Cooperative Lets Consumers Collectively Build Wind Turbines, Shareable, June 21 2017, available at: <https://www.shareable.net/blog/danish-energy-cooperative-lets-consumers-collectively-build-wind-turbines>

Huybrechts, B. and Mertens, S. 2014, The Relevance Of The Cooperative Model In The Field Of Renewable Energy. Annals of Public and Cooperative Economics, 2014. 85(2): p. 193-212

Kirwan, N. 2018, Sustainable Energy Communities: Community action is key to tackling climate change, SEAI, 11 April 2018, available at: <https://www.seai.ie/blog/sustainable-energy-commun/>

Kunze, C. and Becker, S. 2014, Energy Democracy in Europe: A survey and outlook, Rosa Luxembourg Stiftung, Brussels Office, available at: https://www.rosalux.de/fileadmin/rls_uploads/pdfs/sonst_publikationen/Energy-democracy-in-Europe.pdf

Lucha, C. and Prah, A. 2015, Cost and financing aspects of community renewable energy projects, Volume II: Case Studies - Germany, Ricardo AEA, 24/08/2015, available at:

<http://hub.communityenergyengland.org/resources/resource/180/case-study-from-germany-12-cost-and-financing-aspe/>

Peeters, M. and Schomerus, T. 2014, Regional renewable energy: a string of legal and financial challenges, in *Renewable Energy Law in the EU. Legal Perspectives on Bottom-up Approaches*, Edward Elgar, Cheltenham, UK 2014, p. 10-34, draft available at:

https://cris.maastrichtuniversity.nl/portal/files/16165804/Peeters_Schomerus_Concluding_chapter_final_draft_sept_2014.pdf

REN21, 2016, Renewables 2016 Global Status Report, Chapter 7: Feature: Community Renewable Energy: http://www.ren21.net/wp-content/uploads/2016/06/GSR_2016_Full_Report.pdf

REScoop, 2017, The Market Design Initiative: creating a space for local energy communities, May 2017, available at: <https://www.rescoop.eu/blog/energy-communities-and-the-market-design-initiative>

REScoop, 2017, What local energy communities need from clean energy package, March 2017, available at: <https://www.rescoop.eu/blog/energy-communities-and-the-renewable-energy-directive>

REScoop, Report on financial barriers and existing solutions, available at: <https://www.rescoop.eu/starters>

REScoop, REScoop 20-20-20 Best practices, Report I, available at: <https://www.rescoop.eu/starters>

REScoop, REScoop 20-20-20 Best practices, Report II, available at: <https://www.rescoop.eu/starters>

Roberts, J. 2018, Existing activities of renewable/energy communities - case studies, REScoop, a copy shared by the author

Roberts, J. 2018, Energy communities in Europe: inspiring examples of citizen and municipal ownership & cooperation, presentation at the Committee of the Regions: Stakeholders Consultation on “Models of Local Energy Ownership”, 10 July 2018, a copy shared by the author

Roberts, J. 2016, Prosumer Rights: Options for a legal framework post-2020, Greenpeace and Client Earth, May 2016, available at: <https://www.documents.clientearth.org/wp-content/uploads/library/2016-06-03-prosumer-rights-options-for-an-eu-legal-framework-post-2020-coll-en.pdf>

Roberts, J, Bodman, F and Rybski,R 2014. Community Power: Model Legal Frameworks for Citizen-owned Renewable Energy, Community Power and Client Earth, available at: https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/model_legal_frameworks_2014.pdf

Rochon, E. 2018, 'People leading the renewable revolution', Euractiv, 5 Jul 2018: <https://www.euractiv.com/section/electricity/opinion/people-leading-the-renewable-revolution/>

SEAI, 2017, Over 120 communities nationwide now working with SEAI, 27 November 2017, available at: <https://www.seai.ie/news-and-media/over-120-sustainable-ener/>

SEAI, 2016, Energy in Ireland 1990 – 2015, 2016 Report, available at: <http://www.seai.ie/resources/publications/Energy-in-Ireland-1990-2015.pdf>

Simcock, N. Willis, R. and Capener, P. 2016, Cultures of Community Energy, International case studies, The British Academy, May 2016, available at: https://www.britac.ac.uk/sites/default/files/CoCE_International%20Case%20Studies_online_0.pdf

Smith, C. et al. 2016, Social Innovation and Community Energy best practices, methods and tools across Europe, April 2016, available at: <https://isabel-project.eu/wp-content/uploads/Social-Innovation-and-Community-Energy-best-practices-methods-and-tools-across-Europe.pdf>

Wagner, O. and Berlo, K. The wave of remunicipalisation of energy networks and supply in Germany – the establishment of 72 new municipal power utilities, Wuppertal Institute for Climate, Environment and Energy Germany, available at: https://epub.wupperinst.org/frontdoor/deliver/index/docId/5920/file/5920_Wagner.pdf

Walton, M. 2012, Social and Economic Benefits of Community Energy Schemes, Clore Social Leadership Programme, the National Trust and Shared Assets, available at:

http://www.ukcec.org/sites/default/files/files/NT%20report_%20Social%20and%20Economic%20Benefits%20of%20Community%20Energy.pdf

Websites and other online sources:

Intersolar Europe, Virtual power plants are developing into serious market contenders: <https://www.intersolar.de/en/news-press/news/news/virtual-power-plants.html>

Leuphana University of Lüneburg, EnERgioN: The generation, storage and marketing of renewable energy in the northern region: <https://www.leuphana.de/en/partners/innovation-incubator-lueneburg/sustainable-energy/energion.html>

Middelgrunden Wind Turbine Cooperative:

<http://www.middelgrunden.dk/middelgrunden/?q=en/node/35>

Interviews:

REScoop, held on 12 July 2018.

EN

ISBN 978-92-895-0989-3
doi:10.2863/603673

QG-01-18-933-EN-N



**European Committee
of the Regions**

Created in 1994 following the signing of the Maastricht Treaty,
the European Committee of the Regions is the EU's assembly of 350 regional and
local representatives from all 28 Member States, representing over 507 million Europeans.

Rue Belliard/Belliardstraat 101 | 1040 Bruxelles/Brussel | BELGIQUE/BELGIË | Tel. +32 22822211
www.cor.europa.eu | [@EU_CoR](https://twitter.com/EU_CoR) | [/european.committee.of.the.regions](https://www.facebook.com/european.committee.of.the.regions)
[/european-committee-of-the-regions](https://www.linkedin.com/company/european-committee-of-the-regions)