



PROSEU

Prosumers for the Energy Union:
mainstreaming active participation of
citizens in the energy transition

Assessment of existing EU-wide and
Member State-specific regulatory and
policy frameworks of RES Prosumers

(Deliverable N°3.1)

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Summary of PROSEU

PROSEU aims to enable the mainstreaming of the renewable energy Prosumer phenomenon into the European Energy Union. Prosumers are active energy users who both consume and produce energy from renewable sources (RES). The growth of RES Prosumerism all over Europe challenges the existing energy market structures and institutions. PROSEU's research focuses on collectives of RES Prosumers and will investigate new business models, market regulations, infrastructural integration, technology scenarios and energy policies across Europe. The team will work together with RES Prosumer Initiatives (Living Labs), policymakers and other stakeholders from nine countries, following a quasi-experimental approach to learn how RES Prosumer communities, start-ups and businesses are dealing with their own challenges, and to determine what incentive structures will enable the mainstreaming of RES Prosumerism, while safeguarding citizen participation, inclusiveness and transparency. Moving beyond a case by case and fragmented body of research on RE Prosumers, PROSEU will build an integrated knowledge framework for a socio-political, socioeconomic, business and financial, technological, socio-technical and socio-cultural understanding of RES Prosumerism and coalesce in a comprehensive identification and assessment of incentive structures to enable the process of mainstreaming RES Prosumers in the context of the energy transition.

Summary of PROSEU's Objectives

Eight key objectives at the foundation of the project's vision and work plan:

- **Objective 1:** Document and analyse the current state of the art with respect to (150-200) RES Prosumer initiatives in Europe.
- **Objective 2:** Identify and analyse the regulatory frameworks and policy instruments relevant for RES Prosumer initiatives in nine participating Member States.
- **Objective 3:** Identify innovative financing schemes throughout the nine participating Member States and the barriers and opportunities for RE Prosumer business models.
- **Objective 4:** Develop scenarios for 2030 and 2050 based on in-depth analysis of technological solutions for RES Prosumers under different geographical, climatic and socio-political conditions.
- **Objective 5:** Discuss the research findings with 30 relevant stakeholders in a Participatory Integrated Assessment and produce a roadmap (until 2030 and 2050) for mainstreaming RES Prosumerism.
- **Objective 6:** Synthesise the lessons learned through experimentation and co-learning within and across Living Labs.
- **Objective 7:** Develop new methodological tools and draw lessons on how the PROSEU methodology, aimed at co-creation and learning, can itself serve as an experiment with institutional innovation.
- **Objective 8:** Create a RES Prosumer Community of Interest.

PROSEU Consortium Partners

Logo	Organisation	Type	Country
	FCIENCIAS.ID ASSOCIAÇÃO PARA A INVESTIGAÇÃO E DESENVOLVIMENTO DE CIÊNCIAS	Private non-profit association	Portugal
	U.PORTO FEUP FACULDADE DE ENGENHARIA UNIVERSIDADE DO PORTO	University	Portugal
	ICLEI EURO Local Governments for Sustainability	Small and medium-sized enterprise	Germany
	CLIENTEARTH	Non-governmental organisation	United Kingdom
	UNIVLEEDS	University	United Kingdom
	DRIFT	University	the Netherlands
	UNIZAG FSB	University	Croatia
	LEUPHANA UNIVERSITÄT LÖNNEBURG	University	Germany
	ECO-UNION	Non-governmental organisation	Spain
	IÖW INSTITUTE FOR ECOLOGICAL ECONOMY RESEARCH	Private non-profit limited company	Germany
	CE Delft Committed to the Environment	Small and medium-sized enterprise	the Netherlands

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List of abbreviations

EU	European Union
RECom	Renewable energy community
RES	Renewable energy sources
CHP	Heat and power co-generation
FiT	Feed-in Tariff
DSO	Distribution System Operator
TSO	Transmission System Operator
NRA	National Regulatory Authority

Glossary

- **Aggregator:** a demand service provider that combines multiple short-duration consumer loads for sale or auction in organised energy markets (Directive 2012/27 on energy efficiency).
- **Active customer:** a final customer or a group of jointly acting final customers who consume or store electricity generated within their premises located within confined boundaries or where allowed by Member States, on other premises, or sell self-generated electricity or participate in flexibility or energy efficiency schemes, provided that these activities do not constitute their primary commercial or professional activity. (The Electricity Directive)
- **Consumer rights:** the customers right to be safe, informed, choose, and give input to the producers of the goods and services they use. Household consumers and communities engaging in renewables self-consumption should maintain their rights as consumers, including the rights to have a contract with a supplier of their choice and to switch supplier. (Renewable Energy Recast 2030, RED II Directive)
- **Dynamic electricity price contract:** an electricity supply contract between a supplier and a final customer that reflects the price variation at the spot markets including day ahead and intraday markets, at intervals at least equal to the market settlement frequency. (Electricity Directive)
- **Electricity Market:** over-the-counter market and electricity exchanges for trading energy, capacity, balancing and ancillary services in all timeframes, including forward, day-ahead and intra-day markets. (The Electricity Directive)
- **Feed-in-Tariffs:** a policy mechanism designed to accelerate investment in renewable energy technologies. Under a feed-in tariff, eligible renewable electricity generators, including homeowners, business owners, farmers and private investors, are paid a cost-based price for

the renewable electricity they supply to the grid. This enables diverse technologies (wind, solar, biogas, etc.) to be developed and provides investors a reasonable return. The tariff (or rate) may differ by technology, location (e.g. rooftop or ground-mounted for solar PV projects), size (residential or commercial scale) and region. The tariffs are typically designed to decline over time to track and encourage technological change. FITs typically offer a guaranteed purchase agreement for long (15–25 year) periods. (Wikipedia: https://en.wikipedia.org/wiki/Feed-in_tariff)

- **License:** an official permit for an energy installation for contraction, operation, access to the grid (will vary according to the national law in place).
- **Net Metering:** allows consumers who generate some or all of their own electricity to use that electricity anytime, instead of when it is generated. Monthly net metering allows consumers to use solar power generated during the day at night, or wind from a windy day later in the month. Annual net metering rolls over a net kilowatt credit to the following month, allowing solar power that was generated in July to be used in December, or wind power from March in August. (Wikipedia https://en.wikipedia.org/wiki/Net_metering)
- **Peer-to-Peer:** ‘peer-to-peer trading’ of renewable energy means the sale of renewable energy between market participants by means of a contract with pre-determined conditions governing the automated execution and settlement of the transaction, either directly between market participants or indirectly through a certified third-party market participant, such as an aggregator. (RED II Directive)
- **Renewable power purchase agreement:** a contract under which a natural or legal person agrees to purchase renewable electricity directly from an electricity producer. (RED II Directive)
- **Prosumer:** renewables self-consumer (see below) and active customer. as defined the revised electricity Directive (COM (2016) 864 final/2) and a revised Renewable Energy Directive (COM (2016) 767 final/2)
- **Renewables self-consumer:** a final customer operating within its premises located within confined boundaries or, where permitted by a Member State, within other premises, who generates renewable electricity for its own consumption, and who may store or sell self-generated renewable electricity, provided that, for a non-household renewables self-consumer, those activities do not constitute its primary commercial or professional activity. (RED II Directive)
- **Self-consumption:** activities specific for self-consumers (as described in the definition of a renewables self-consumer).
- **SME:** a micro, small or medium-sized enterprise as defined in Article 2 of the Annex to Commission Recommendation 2003/361/EC¹ (RED II Directive)
- **Surplus renewable energy:** self-generated renewable energy, which is not self-consumed.

¹ Commission Recommendation 2003/361/EC of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises (OJ L 124, 20.5.2003, p. 36)

Executive summary

This report identifies and describes the regulatory frameworks and policy instruments relevant for RES Prosumer initiatives in the EU and nine participating Member States.²

Taking the current state of the art on the legal challenges and opportunities for RES prosumers, this document explains recent developments of EU legislation related to renewable energy production and self-consumption (i.e. prosumerism). The analysis of the policy and regulatory frameworks of nine EU Member States (i.e. Belgium/Flanders, Croatia, France, Germany, Italy, Portugal, Spain, Netherlands and United Kingdom/Great Britain) provides information necessary for understanding how the different regulatory frameworks are constraining or enabling the development of individual and collective forms of RES prosumerism. It will also be a useful tool for assessing whether and, if so, how prosumer provisions of the recent EU legislation are already integrated in the Member States' national regulatory frameworks.

The study focusses on countries from the South, Centre and North of Europe, which present very distinct levels of advancement in decentralised production of energy from renewable sources (RES) led by individual prosumers and prosumer collectives of various types (e.g. communities, cooperatives, companies, municipalities and villages). Regarding collective forms of self-consumption the focus of this report is on 'renewable energy communities' since the legal definition of these communities appears in the most recent EU legislation, but it is not yet commonly present in national legislations. Nevertheless, other forms of collective self-consumption (such as jointly acting renewables self-consumers) were also considered.

All countries analysed have some sort of legislation aimed at regulating self-consumption, although the term 'self-consumption' does not always include all elements, and the term 'prosumer' is never used in any of the legal documents analysed. Yet, there is still a long way ahead for majority of the countries to translate EU-definitions such as 'renewables energy communities' or 'jointly acting renewables self-consumers' to their national legislations. In the nine countries analysed only one (Germany) had a definition that could be considered a definition of renewables energy communities. Out of the nine countries analysed only France, Germany, Spain and the Netherlands (possibly also Italy) have or are developing a legislative framework supporting these communities and other forms of collective self-consumption, and in case of Portugal setting up these communities would not be possible. It is expected that national legal frameworks of EU Member States will continue to change in the coming years in view of the implementation of EU Directives.

Overall, we conclude that the recently adopted EU legislation is likely to be driving changes at the national level, by promoting more progressive energy policies, centred on the role of citizens as active energy consumers. Currently, the level of supportive legal frameworks in the Members States is quite diverse, some are advanced (e.g. Germany, France), others are far behind (e.g. Portugal). Our aim in PROSEU is to continue assessing the situation of prosumers and energy communities in the EU, and the studied countries. The present report, is then, the first necessary step for all further analytical and policy work that will be carried out in the project.

² Deliverable contributing to objective 2 of the PROSEU project.

Introduction

The report describes the EU's and nine Member States' regulatory and policy frameworks concerning production and self-consumption (i.e. prosumerism) of energy from renewable energy sources (hereafter referred to as RES). It looks at challenges, opportunities and incentives of regulations and policies for RES prosumerism in place at the national and EU level, showing/presenting these findings in the form of country factsheets. This information is crucial for further legal and policy work necessary for improving the situation of prosumers and energy communities in the nine EU Member States and aligning national laws and policies with the recent EU developments.

Due to the distributed nature of renewable energy sources, the transition towards a renewable-based energy model is intrinsically linked to a new role for citizens, not as passive users and consumers, but as active energy citizens (Hisschemöller & Sioziou, 2013), and energy producers and consumers (Kalkbrenner & Roosen, 2016). In this energy model, consumers, by producing their own energy at the local or neighbourhood level, become what is called *prosumers* (Butenko, 2016).

The term 'prosumer' by now has been mainly applied in the literature to local photovoltaic producers (IEA-RETD, 2014), but in the context of project PROSEU is expanded to producers/consumers of energy from any other renewable and clean energy, who are also active energy citizens, willing to participate in energy markets (Kalkbrenner & Roosen, 2016). Thus, we refer to *RES prosumers*.

Considering the (structural) role of regulatory and legal frameworks in accelerating or deterring the energy transition (Geels, 2010), this document attempts to unravel and clearly detail how regulatory changes impact on RES prosumerism in Europe.

The recent developments of EU legislation on prosumerism (adoption of recasts of the Renewables Directive, the Electricity Directive and the Electricity Regulation as well as adoption of the Governance Regulation) are expected to drive changes at the national level. It is important that these changes are well designed and implemented and that they bring effective results. It is therefore crucial to gather information on the current legal and policy situation of individual and collective prosumers to be able to provide guidance and help on further policy and legal frameworks.

The document provides information on new EU and existing national legislation on prosumers and energy communities in five sections. Section 1 describes the methodology applied in this research. Section 2 offers an account of the results of the literature and documentary analysis. Section 3 provides an overview of EU regulatory frameworks for RES prosumers, including definitions and rights, types of actors, legal forms of energy communities, electricity markets, as well as legal incentives and barriers. Section 4 presents the data collected on the regulatory frameworks of the nine EU countries in the form of country factsheets. The country factsheets deliver the results of the questionnaire applied to legal experts in the nine countries complemented by the documentary and literature review. Section 5 provides a comparative analyses of the key challenges and opportunities across these nine regulatory frameworks. Finally, the conclusion distils the main findings regarding the impact of EU-wide and national regulatory frameworks on the development of RES prosumer collectives in Europe.

1. Methodology

The methodology is based on a comparative and qualitative analysis of legal and policy frameworks related to the role of citizens in renewable energy production and consumption. An early exploratory review of literature, including of results of other European projects, led to the development of a questionnaire as our primary tool for data collection.

The early literature and documental review included the analysis of relevant deliverables from European funded projects, of peer-reviewed research papers as well as the analysis of EU legal documents relevant for RES prosumerism.

Concerning the review of research papers, 48 peer-reviewed articles were selected for analysis, after a wider screening of 225 research articles, using key words such as *self-consumption*, *regulatory frameworks*, *energy laws*, *energy justice*, *energy democracy*, *energy communities* and *prosumers*. Drawing on the literature and documental review findings, a questionnaire was produced.

Data on the regulatory frameworks of nine EU Member States was collected through i) the application of the questionnaire to 12 energy law experts (1 per country and 2 experts in the case of Germany, Portugal and the Netherlands) and on ii) a documentary review of legal documents (the full list of these is presented in Annex 1). The countries analysed were Belgium/Flanders, Croatia, France, Germany, Italy, Portugal, Spain, The Netherlands and the United Kingdom/Great Britain. The results of the questionnaire were cross-checked with the analysis of relevant legal documents (see Annex 1) and policy documents and were then sent back to the country experts for a final check in order to develop nine country factsheets presented in the results (sections 3 and 4). Finally, the regulatory frameworks were compared (in section 5) in order to identify the key challenges and opportunities for RES prosumers related to the national regulatory and policy frameworks analysed, while also considering the current role of EU regulations as a driver for changes in national energy policies.

1.1 Questionnaire

The questionnaire, applied between July and November 2018, covered four topics, namely: (1) self-consumption and prosumers, (2) energy communities, (3) energy markets, and (4) administrative procedures, legal barriers and opportunities. The results are presented in section 4 as country factsheets.

The first set of questions (questions 1 and 2) aim to characterize the legal framework for self-consumption, by collecting information on consumer's rights to generate their own energy, as well as the rules for self-consumption and selling excess energy to the grid, including restrictions on the size of load allowed and remuneration for surplus energy injected into the grid and storage. The second set of questions (from question 3 to 7) focusses on energy communities or renewable energy communities (REComs), collecting information on their legal forms, type of communities (e.g. multi-apartment buildings, other), type of actors who can become members, legal definitions, specific rights of these communities, and understanding whether REComs are able to produce, self-consume, store, supply or sell renewable energy within or between different communities. The third section (questions 8 and 9) collects data on energy markets and the possibility of self-consumers and/or REComs participating in energy markets directly or through aggregators. This section includes questions on the existence of dynamic electricity price contracts. The fourth section (questions 10 and 11) deals with the

costs for setting up a self-consumption installation and/or an energy community, by asking questions about the administrative and production licensing processes. Finally, the last section (questions 12 to 14) analyses related to specific legal barriers and opportunities (including incentives) for renewable self-consumption and any new additional policies adopted which could be relevant for self-consumers.

2. Insights from Literature Review

2.1 Deliverables from other EU funded projects

As regards to the deliverables from other European funded projects, we highlight the relevance of ENTRUST's report on policy and regulation landscape (Boo et al., 2016) where a number of policy landscapes were characterized in six countries, including five that are analysed in this document (Spain, United Kingdom, France, Italy and Germany). Boo and co-workers's analysis provided a useful 'background' for understanding the regulatory frameworks for the specific case of RES prosumerism in these countries, since their analysis offers an overview of the key problems, objectives, targets, discourse and main events as drivers that set up the overall energy policy landscape in these countries.

RES2020 deliverables offer a fundamental bedrock for this study, as they set up the scene, with a focus on Renewable Energy Cooperatives (REScoops) by providing key policy recommendations «and report on the financial barriers and existent solutions for REScoops (RES2020, n.d).

SI-DRIVE (Ooms et al., 2017) provides a useful description of the 'practice field' of energy communities (including energy cooperatives and business collectives) that offers an important starting point to understand the role of regulatory frameworks in enabling or constraining social innovations in the energy sector.

Moreover, deliverables from other projects offer an overall knowledge baseline on recent advances in developing a comprehensive analysis of individual and collective factors playing a role in decision-making and behaviors (e.g. ECHOES project), a specific case study on the journey from 'Consumer to Prosumer' (Standal et al., 2018), the importance of social practices and everyday life for the establishment of Sustainable Energy Communities (Jensen et al., 2017), a comparison of potential transition pathways for long-term decarbonization targets (Geels, 2016), and finally the importance of community-based initiatives, and in particular the special case of energy communities, in reducing our European carbon footprint (Landholm et al., 2016).

2.2 Journal Articles

The review of research articles shows that regulatory frameworks related to self-consumption and to energy communities are intrinsically regulating the agency of prosumers.

The relationship of RES Prosumers and the grid can take different forms (Moura, 2016), and that the main goal of national regulatory frameworks is to regulate these relationships. There are different degrees of RES prosumerism: RES prosumers (individuals or collectives) could be fully self-sufficient and not be connected to the grid system, thus supplying 100% of their energy needs (i.e. including electricity, as well as heating or cooling). RES prosumers can also continue to purchase energy from the grid yet have a (local RES) production which supplies a percentage of their energy needs. Finally,

prosumers could produce energy from renewable sources and inject a large portion of this power into the grid, while also continuing to purchase electricity from the grid (Moura, 2016).

Self-sufficiency can be considered as a 'right' – i.e. the right to self-consume (Masson & Briano, 2016) – and, at a small scale, will not pose challenges to energy markets (since self-sufficient prosumers are by definition excluded from energy markets). However, if self-sufficiency is widely adopted a so-called "grid defection" of large numbers of prosumers would make local electricity grids less viable or difficult to maintain (Kantamneni, Winkler, Gauchia, & Pearce, 2016).

Other forms of prosumerism are also challenging current market structures, requiring the adaptation of local regulatory frameworks, business models and even grid management options (Brange, Englund, & Lauenburg, 2016; Butenko, 2016).

Thus, regulatory frameworks in the energy sector have sprouted around the world as a policy response to the growth of RES prosumers. Yet, overall "Energy law has addressed particular issues in the energy sector, but it has not had a holistic view of the sector" (Heffron & Talus, 2016). Moreover, given the growth of RES Prosumers in Europe and the US (due to feed-in-tariff and net-metering schemes), regulatory frameworks need to be adapted to this new reality and are racing forward to meet the new social and market challenges of the energy system (Kotilainen & Saari, 2018; Spurling, McMeekin, Southerton, Shove, & Welch, 2013). The regulation of RES prosumers can be highly complex, given the growing variety of schemes, business models, and typologies of prosumers, and the subsequent growing variety of needs that cannot be always satisfied by existent frameworks.

Key legal challenges refer to improved competitiveness of self-consumption business models (Masson & Briano, 2016). Feed-in-tariff schemes have been widely applied in the past (e.g. Great Britain) but governments increasingly reject them. Conversely, net metering and virtual net metering can potentially open a range of key opportunities for a widespread adoption of energy communities and other forms of RES prosumerism (acting both individually and collectively). A few examples can be taken from the United States, where net-metering policies in some states allow on-site generation schemes, which feed excess electricity back to the grid, receiving either a monetary remuneration or (more often) credits in the final energy bill. One example is 'virtual net-metering', which refers to "the sharing of benefits from renewable energy projects by allowing those lacking access to a suitable generating site to participate in sharing the output from a single facility" (Burke & Stephens, 2017) (p. 39). Schemes such as feed-in tariffs (applied in several countries, including Germany, see section 4.4) have been fundamental to kick-start self-consumption and RES prosumers in Europe, yet require "appropriate and transparent pricing schemes" (Burke & Stephens, 2017) (p.39).

Another important challenge relates to the need to support the development and management of collective forms of self-consumption, such as renewable energy communities (Bauwens, 2016; Bauwens & Devine-Wright, n.d.; Wirth, 2014). Despite the growing literature on community energy and renewable energy communities (Bauwens, 2016; Brummer, 2018; Capellán-Pérez, Campos-Celador, & Terés-Zubiaga, 2018; Seyfang, Park, & Smith, 2013), there seem to be several legal and management challenges for the flourishing of these type of collectives across Europe, such as the possibility of selling energy directly between self-producers and demand-side management schemes.

There is a strong argument that RES prosumers can play a key role in energy democracy, and energy justice (Jenkins, Sovacool, & McCauley, 2018). Both concepts are still emerging in Energy and

Transition Research (Burke & Stephens, 2017), yet there seems to be a clear link between the possibility for mainstreaming RES Prosumerism as part of a new energy model that improves energy democracy and reduces energy poverty (Jenkins et al., 2018).

While we found several research papers focusing on specific legal aspects of self-consumption and energy markets (which informed the design of our questionnaire and the country factsheets), there is still a lack of major studies focusing on regulatory frameworks for prosumers. Moreover, the studies that have been the most useful for our research focused mainly on PV prosumers and on individual prosumers (Masson & Briano, 2016). An overview of how national legal frameworks affect the wide range and high complexity of prosumers organized as collectives (i.e. companies, municipalities, condominiums, and other types of energy communities, etc.) is still missing. This study aims to start filling this gap. Moreover, the scope of recent studies has been mainly on photovoltaic solar energy, while this study considers electricity as well as thermal energy for heating or cooling, as well as all other renewable sources (e.g. wind, biomass, geothermal).

3. Results of Documentary Overview of EU Regulatory Frameworks for RES Prosumers

2018 was an important year for prosumers and energy communities in the EU. The European Parliament and the Council agreed on the texts of EU laws directly regulating prosumers and energy communities. In that respect, relevant provisions have been included in the newly adopted recasts of the Renewables Directive (adopted and published in 2018) and of the Electricity Directive (agreed politically but still pending a final adoption, which should happen in 2019).

This can be considered a big step. Until now in EU law there was no legal definition of 'prosumer', self-consumer or active customer which would encompass consumers' capacity to be active agents in the energy sector both individually and collectively. There was also no dedicated prosumer rights framework that would promote active participation by consumers in the internal energy market. Therefore, prosumers were exposed to the same investment risks and uncertainties as traditional commercial actors and investors, even though prosumers are more vulnerable to such risks. They were required to comply with the same rules as established energy companies, placing them at a distinct competitive disadvantage (Roberts, 2016).

The weak EU regulation resulted in very different individual and collective prosumer situations in different EU Member States.

The adoption of EU legal provisions on prosumers and energy communities is a stepping stone of a growing political recognition of the role that citizens and consumers play in the process of energy transition.

The earlier stages of this political process can be seen in the Commission's 2015 documents, 'The Energy Union Framework Strategy' (Roadmap for the Energy Union, 2015) and 'Delivering a New Deal for Energy Consumers' (Delivering a New Deal for Energy Consumers, 2015), where the European Commission sets out the vision of an Energy Union "with citizens at its core, where citizens take ownership of the energy transition, benefit from new technologies to reduce their bills, participate actively in the market, and where vulnerable consumers are protected" (p. 2). In the latter document the Commission explicitly called for citizens to "be free to choose their preferred form of active

participation in energy markets” (p. 4). In the three-pillar strategy to deliver a New Deal for Energy Consumers, among the ways to empower citizens to act were listed, i.e. reducing energy bills through self-generation and consumption, as well as increasing consumer participation through intermediation and collective schemes.

As a consequence, and following this path, the policy documents and legislative proposals presented by the European Commission in November 2016 within the EU Clean Energy Package, included strong provisions on prosumers and energy communities.

The Commission recognised that “consumers are active and central players on the energy markets of the future’ and that ‘they will have the possibility to produce and sell their own electricity” (Clean Energy for all Europeans, 2016).

The relevant Commission’s legislative proposals were discussed in 2017 and 2018 and politically agreed in 2018. Some were formally adopted in 2018. Some others will get formally adopted in 2019.

Table 1 below shows the key legislative proposals that were analysed due to their relevance for prosumers.

Table 1 Relevant European Commission Legislative Proposals (2017-2018)

Legislative Proposal	Full title	Agreed politically (AP) / Adopted (A)	Published
The recast of the Renewables Directive ('The RED II')	Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast)	11 December 2018 (A)	EU OJ L 328, 21.12.2018, p. 82 - 209 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001&from=EN
The recast of the Electricity Market Directive ('The draft recast Electricity Directive')		19 December 2018 (AP)	
The (new) Governance Regulation	Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the	11 December 2018 (A)	OJ L 328, 21.12.2018, p. 1–77 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uris

	<p>Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council (Text with EEA relevance.)</p>		<p>erv:OJ.L .2018.328.01.0001 .01.ENG&toc=OJ:L:2018:328:TOC</p>
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- **The recast of the Renewables Directive** introduced a definition of a renewables self-consumer, jointly acting renewables self-consumers and a renewable energy community as well as basic regulations relevant for these players;
 - **The draft recast of the Electricity (Market) Directive** has included a definition of active consumer (with a scope larger than of a renewables self-consumer) and citizens energy community (with a scope larger than of a renewable energy community) and basic regulations related to them;
- A political agreement has been reached on the recast of the Electricity Directive but it has not yet been adopted formally and has not yet been published;*³**
- **The new Governance Regulation** imposed on EU Member States planning and reporting obligations, incl. on renewables self-consumers and renewable energy communities as well as citizens energy communities; it also imposed other planning and reporting obligations, which are not directly mentioning any form of self-consumption but may potentially be relevant for renewable self-consumers and energy communities.

Figure 1 below provides a mind map of the key EU policies for RES prosumer collectives.

³ The numbers of Articles may change in the final version of the Directive published in the EU Official Journal (OJ). Changes may also be introduced in relation to the exact wording.

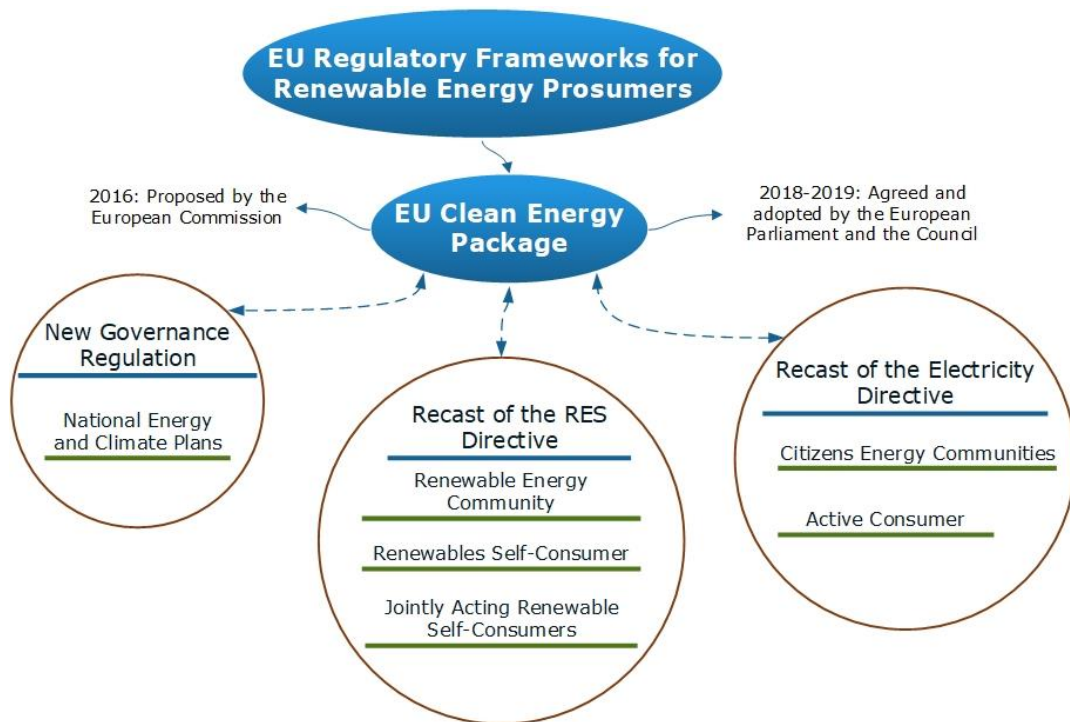


Figure 1 Mind Map of Key EU regulatory frameworks and policies relevant for Renewable Energy Sources (RES) Prosumer Collectives in Europe

Certain provisions of the recast of the Electricity Regulation⁴, although not tackling prosumers and energy communities directly, are also relevant for them as it provides rules regarding the operation of electricity markets.

In the following subsections we will provide more detail on how the new EU regulatory frameworks regulate renewables self-consumers and renewable energy communities. Renewable energy communities will be considered in more detail as they are the focus of the PROSEU project. The elements described are definitions and rights (to produce, self-consume, store and sell electricity (for REComs, also share), participation in the markets, availability of dynamic electricity price contracts, access to the grid, or incentives and barriers, among others.

The below description of the new EU legislative framework will be then, in further sections of this document, complemented by and compared with the situation in certain EU Member States.

⁴ The recast of Electricity Regulation was proposed by the Commission in November 2015 as part of the EU Clean Energy Package (Proposal for a Regulation of the European Parliament and of the Council on the internal market for electricity (recast), COM(2016) 861 final/2 - 2016/0379 (COD)); the Regulation was negotiated together with the Electricity Directive and agreed on the 18 December 2018.

3.1 Definitions

3.1.1 Renewables self-consumer

The newly agreed revision of the EU Renewables Directive has introduced a definition of a **renewables self-consumer** (Art. 2 (14)). According to this Directive, a renewables self-consumer is a final consumer who generates renewable electricity for its own consumption and may store or sell their self-generated renewable electricity, provided that, for a non-household renewables self-consumers, those activities do not constitute its primary commercial or professional activity.

The location of operations (production and consumption but also selling and storage) is also a key element of the definition. In conducting its activities, self-consumers must operate within their premises located within confined boundaries. However, it is also stated that Member States may allow renewable self-consumers to operate on other premises.

This definition is further complemented by a description of self-consumers' rights (as described further in this document).

N.B.: The authors of this study consider that the terms 'RES self-consumer' and 'RES prosumer' are equivalent and apply to the same actors.

The Directive also recognises the value for renewable self-consumers to act jointly (Art. 2 (15) and Art. 21.4 of the RED II). **Jointly acting renewables self-consumers**, as defined in the RED II, "are located in the same building or multi-apartment block". They are allowed to arrange sharing of renewable energy that is produced on their site or sites between themselves. This has to be done without prejudice to the network charges and other relevant charges, fees, levies and taxes applicable to each renewables self-consumer. These jointly acting self-consumers are not necessarily renewable energy communities, which are described further down.

A Member State may (it is explicitly allowed to by the RED II) decide to differentiate between individual renewables self-consumers and jointly acting renewables self-consumers. If this is the case, any different treatment shall be proportionate and duly justified.

3.1.2 Active customer

It is important to mention in this place a definition of **active customer** included in the recast of the Electricity Directive. This definition may still slightly change as the recast of the Electricity Directive has been agreed politically but not yet adopted formally and not yet published.

"'Active customer' is a final customer or a group of jointly acting final customers who consume or store electricity generated within their premises located within confined boundaries or where allowed by Member States, on other premises, or sell self-generated electricity or participate in flexibility or

energy efficiency schemes, provided that these activities do not constitute their primary commercial or professional activity.” (Art. 2.6 of the draft recast Electricity Directive⁵)

The definition of active customer is thus wider than the definition of a renewable self-consumer as it includes also flexibility mechanisms, energy efficiency schemes and potentially self-generated electricity from non-renewable sources.

Otherwise, the two concepts are very similar, despite the use of a different name (consumer v. customer). Both renewable self-consumers and active customers are final actors (consumers/customers) who can act either individually or jointly and who generate their own electricity and are allowed to consume, store and sell it. They are also subject to similar location constraints.

Similarly, to a definition of a renewables self-consumer, the definition of an active customer is complemented by a description of rights and obligations that Member States shall ensure and put in place to enable these actors and allow them to participate in the energy markets.

There are also similarities between provisions on **jointly acting final customers** in the draft recast Electricity Directive and jointly acting renewables self-consumers in the RED II. Although the draft recast Electricity Directive does not provide a definition of jointly acting final customers, it specifies that “Member States may have different governing provisions for individual and jointly acting final customers in their national legislation provided that all rights and obligations as stipulated in this Article (Article 15 of the draft recast Electricity Directive) are applied to all active customers. Any different treatment towards jointly acting active customers shall be proportionate and duly justified.” (Art. 15.1b of the draft recast of the Electricity Directive)

3.1.3 Renewable Energy Community

According to the RED II, renewable energy communities may generate, consume, store and sell renewable energy. They are entitled to self-arrange sharing of renewable energy within the community and have a right to access all suitable energy markets directly or through aggregation in a non-discriminatory manner.

The Directive also mentions that renewable energy communities may carry other activities than generation, consumption, storage and sale of renewable energy. It states that “renewable energy communities that supply energy or provide aggregation or other commercial energy services are subject to the provisions relevant for such activities.” (Art. 22.4(b) of the RED II)

The RED II’s definition of renewable energy community is based on four elements (additional to its legal status (legal entity)): 1. Participation and internal organisation, 2. Location, 3. Type of members, 4. Purpose of its activities.

Therefore, the Directive provides that renewable energy community is a legal entity:

⁵ The numbers of Articles of the draft recast Electricity Directive may change when the final version is published in the EU Official Journal (OJ).

- “(a) which, in accordance with 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 proximity⁶ of the renewable energy projects that are owned and developed by that legal community;
- (b) the shareholders or members of which are natural persons, SMEs or local authorities, including municipalities;
- (c) the primary purpose of which is to provide environmental, economic or social community benefits for its shareholders or members or for the local areas where it operates, rather than financial profits.” (Art. 2.16 of the RED II)

The rights and obligations of a renewable energy community (as set by the RED II to be implemented by Member States) complement the definition.

3.1.4 Citizens energy community

The draft recast Electricity Directive sets the definition of another type of energy community, i.e. ‘citizens energy community’. As renewable energy community, a citizens energy community is a legal entity. The scope of activities of a citizens energy community is larger than this of a renewable energy community. “A citizens energy community can be engaged in electricity generation, distribution and supply, consumption, aggregation, storage or energy efficiency services, generation of renewable electricity, charging services for electric vehicles or provide other energy services to its shareholders or members” (Art. 2.7, last sentence of the draft recast Electricity Directive). Therefore, activities of a citizens energy community are not limited to renewable energies, even though they may (it is stated explicitly) include generation of the renewable electricity. It can be assumed that other activities of renewable energy community, i.e. storage and consumption of self-generated renewable electricity, may also be carried out by a citizens energy community (and vice versa).

The citizens energy community may be engaged into activities that are not listed in relation to the renewables energy community, i.e. distribution and supply as well as aggregation, charging services for electric vehicles or provision of other energy services. On the other hand, the fact that the RED II mentions that “renewable energy communities that supply energy or provide aggregation or other commercial energy services are subject to the provisions relevant for such activities” (Art. 22.4(b) of the RED II) implies that these other activities could also be carried out by a renewable energy community.

As in the case of a renewable energy community, a citizens energy community is based on voluntary and open participation. It is not stated though (as it is for a renewable energy community) that it is autonomous. Similar to a renewable energy community, it must be effectively controlled by shareholders or members. These members are natural persons, local authorities, including municipalities, or small enterprises and micro-enterprises. It is interesting to note a difference of description of the latter category of members between the two types of energy communities. In relation to renewable energy communities they are named ‘SMEs’⁷.

⁶ Note from the authors of the study: the term ‘proximity’ is not further defined in the RED II.

⁷ See glossary

The primary purpose of a citizens energy community is to provide environmental, economic or social community benefits for its members or the local areas where it operates rather than financial profits.

The rights and obligations of a citizens energy community complement the above described definition.

In addition, provisions of the draft recast Electricity Directive are extensively complemented by its recitals. Recitals provide very useful information on the importance of citizens energy communities and their added value to the system. They help to interpret and better understand the relevant provisions. For example, they explain in more detail the membership rules applicable to the community.

The details of a relationship between activities of these two types of energy communities (a renewable energy community and a citizens energy community) should be further assessed and clarified. It seems that they can carry out the same activities. The difference is the type of energy they deal with, which in case of a citizens energy community is larger as it is not only limited to renewable electricity.

This report concentrates on the situation of renewable self-consumers and renewable energy communities as they are the main focus group of the project. However, the report also refers to active customers and citizens energy communities (draft recast Electricity Directive concepts) but in less detail.

One of reasons for choosing this approach is the fact that the RED II, which regulates renewables self-consumers and renewable energy communities, has already been formally adopted, while the draft recast Electricity Directive is still pending final approval at the moment of preparing this report.

3.2 Renewables self-consumers' rights

3.2.1 Overview of renewables self-consumers' rights

The RED II complements the new definition of a renewable self-consumer by providing rights to this new category. This means that what self-consumers may or may not do is not only recognised in a definition but is further defined by providing additional features and rights, which Member States must implement.

These rights are large and regulate both what self-consumers are entitled to (including, what Member States must establish at national level in order to promote and facilitate the development of renewable self-consumption) and what they may not be subject to. They are expressed as high-level principles and general obligations that need to be further defined and described at the national level.

The RED II provides (in Art. 21.2) renewables self-consumers the rights to:

- Generate renewable energy, including for their own consumption;
- Store their excess production of renewable electricity;
- Sell excess production of renewable electricity (including through renewables power purchase agreements, electricity suppliers and peer-to-peer trading arrangements);
- Maintain rights and obligations as final consumers;

- Be remunerated for electricity fed into the grid (“to receive remuneration, including, where applicable, through support schemes, for the self-generated renewable electricity that they feed into the grid, which reflects the market value of that electricity and which may take into account its long-term value to the grid, the environment and society” (Art. 21.2(d)).

In addition, the Directive establishes that Member States shall put in place an enabling framework to promote and facilitate the development of renewable self-consumption. (N.B.: This must be preceded by a national assessment of the existing unjustified barriers to and the potential of renewable self-consumption in their territories and energy networks.)

The RED II provides the minimum elements of this enabling framework. They are clearly minimum as it is stated that “The framework shall ensure, inter alia, that ...” (Art.21.6 RED II). Therefore, Member States are free to set additional rules and provisions aiming to promote and facilitate the development of renewable energy communities.

The enabling framework should address the accessibility of self-consumption, barriers and incentives, i.e.:

- The accessibility of renewables self-consumption to all final customers (incl. those in low-income or vulnerable households),
- Unjustified barriers to the financing of projects in the market and measures to facilitate access to finance as well as other regulatory barriers to renewables self-consumption (incl. for tenants),
- Incentives to building owners to create opportunities for renewables self-consumption (incl. for tenants).

The national enabling framework shall also:

- Grant renewables self-consumers non-discriminatory access to relevant existing support schemes and to all electricity market segments (for self-generated renewable electricity fed into the grid)

And, in addition to setting rights and obligations that would positively enable self-consumers, a Member State shall also set details of self-consumers’ obligation, i.e.

- Ensure that renewable self-consumers contribute in an adequate and balanced way to the overall cost sharing of the system when electricity is fed into the grid.

3.2.2 Right to generate electricity for own consumption

The rights of the self-consumer to generate electricity and consume this self-generated electricity are accompanied in the RED II by a few additional legal conditions.

One of them, which seems particularly important, is that they should not be subject to discriminatory or disproportionate procedures and charges. This prohibition concerns electricity which self-consumers consume from or feed into the grid and self-generated electricity from renewable sources remaining within their premises. The RED II also prohibits network charges that are not cost-reflective on

electricity which self-consumers consume from or feed into the grid and any charge or fees on self-generated renewable electricity which remains within self-consumers' premises.

In certain cases, Member States may apply non-discriminatory and proportionate charges and fees to renewable self-consumers, on their self-generated renewable electricity which remains within their premises (Art. 21.3 of the RED II). There are 3 situations (not necessarily cumulative) when a Member State may do that.

When may a Member State apply non-discriminatory and proportionate charges and fees to renewables self-consumers on the self-generated renewable electricity which remains within their premises? (Art. 21.3 of the RED II)

- If the electricity is supported via support schemes (only to the extent that the economic viability of the project and incentive effect of such support are not undermined);
- If the overall share of self-consumption installations exceeds 8% of a Member State's total installed electricity capacity – situations and under certain conditions, i.e.
 - such non-discriminatory and proportionate charges and fees to renewable self-consumers may be applied not earlier than in December 2026
 - the 1st step is for a National Regulatory Authority to perform a cost-benefit analysis through an open, transparent and participatory process
 - if the results of the analysis demonstrates, in relation to self-generated renewable electricity which remains within premises of a self-consumer, that the lack of discriminatory or disproportionate procedures, and charges or fees, resulted in significant disproportionate burden on the long-term financial sustainability of the electric system or creates an incentive exceeding what it is objectively needed to achieve cost-effective deployment of renewable energy, and that such burden or incentive could not be minimised by taking other reasonable actions;
- If the self electricity is produced in installations with a total installed electrical capacity above 30kW.

3.2.3 Electricity storage by self-consumers

The RED II provides a right to store the excess production of renewable electricity but also sets more details on this energy storage right (Art. 21.2.(b)). It states that a self-consumer is entitled to install and operate electricity storage systems combined with installations generating renewable electricity for self-consumption without liability for any double-charge, incl. network charges, for stored electricity which remains within their premises.

3.2.4 Right to sell surplus of self-generated electricity and get remunerated for it

As mentioned above, the RED II gives prosumers (self-consumers) the right to sell excess production of renewable electricity (Art. 21). It lists some of the ways in which this can be done, namely through

“renewables power purchase agreements, electricity suppliers and peer-to-peer trading arrangements.” (Art. 21.2(a) of the RED II) Yet, this list is not exhaustive.

The RED II does not only say that self-consumers are entitled to be remunerated for the self-generated electricity they feed into the grid. It also mentions that this remuneration may have a form of support schemes. Art. 21.2(d) of the RED II states that “Member States shall ensure that renewables self-consumers, individually or through aggregators, are entitled to receive remuneration, including, where applicable, through support schemes, for the self-generated renewable electricity that they feed into the grid, which reflects the market value of that electricity and which may take into account its long-term value to the grid, the environment and society.”

The draft recast Electricity Directive regulates the generation, consumption, storage and selling of electricity are inherent features of active customers. More detailed rules are set in the draft recast Electricity Directive on selling (active customers are entitled “to sell self-generated electricity including through power purchase agreements” (Art. 15.2(b) of the draft recast Electricity Directive) and on storage (active customers owning a storage facility are provided a number of rights such as, e.g. “the right to a grid connection within a reasonable time following the request if all necessary conditions such as balancing responsibility and adequate metering are fulfilled”) (Art. 15.1c(a) of the draft recast Electricity Directive).

3.3 Renewable Energy Community’s rights and obligations

3.3.1 Legal framework for setting up Renewable Energy Communities

The RED II not only sets a definition of a renewable energy community but also provides further features of the renewable energy communities (Art. 22).

According to Art. 22.1 of the RED II, all final customers, and household customers, are entitled to participate in a renewable energy community. This participation should be accessible for all final consumers (also to low-income and vulnerable households). (Art. 22.4(f)). Final customers may not be subject to unjustified or discriminatory conditions or procedures that would prevent their participation in a renewable energy community. For private undertakings the participation in a renewable energy community shall not constitute the primary commercial or professional activity. (Art. 22.1)

The draft recast Electricity Directive provides a legal framework for setting citizens energy community. The main provisions are concentrated in Article 16 specifically dedicated to citizens energy communities. References to communities are also included in other Articles. Art. 6 on third party access provides that its provisions apply also to citizens energy communities that manage distribution networks, while Art. 59 mentions that one of the duties and powers of the regulatory authority is monitoring the removal of unjustified obstacles and restrictions to the development of self-consumption and citizens energy communities. Additional explanations are also included in recitals.

3.3.2 Energy community in the same building or multi-apartment block

The RED II explicitly recognises the possibility for renewable self-consumers to act jointly when located in the same building or multi-apartment block. However, it does not consider these jointly acting self-consumers as energy communities. They remain a special category of self-consumers if they do not organise in the form specific for an energy community (taking the form of a legal entity compliant with conditions set in the EU law).

Recital 66 of the RED II provides the following additional explanation concerning multi-apartment buildings: "(...) Citizens living in apartments for example should be able to benefit from consumer empowerment to the same extent as households in single family homes. However, Member States should be allowed to differentiate between individual renewables self-consumers and jointly acting renewables self-consumers due to their different characteristics to the extent that any such differentiation is proportionate and duly justified".

3.3.3 Legal forms of Renewable Energy Communities

The EU legislation provides that a renewable energy community is a legal entity (this is a very important legal condition). This legal entity shall present certain minimum features: be based on open and voluntary participation, be autonomous and effectively controlled by shareholders or members (which must be located in the proximity of the renewable energy projects owned and developed by the community). Its membership and a possibility of being its stakeholder is limited to certain actors (natural persons, local authorities, including municipalities, and SMEs).

The legal forms of citizen energy communities have been discussed in this report above, as part of the definition.

3.3.4 Right to generate, consume, store, sell and share renewable energy

Member States shall ensure that renewable energy communities are entitled to certain basic minimum features. There are three such features. They are basic requirements, necessary for renewable energy communities to exist and function.

The first one is the right for renewable energy communities to generate, consume, store and sell renewable energy, including through renewables power purchase agreements.

This right, although not presented in the Directive as part of the definition, is de facto describing what the renewable energy community is as a minimum.

The other two basic features that Member States shall ensure in relation to renewable energy communities are: a right for a renewable energy community to arrange sharing of its self-produced renewable energy and a right to access all suitable energy markets (directly or through aggregation) in a non-discriminatory manner.

In relation to energy sharing the RED II provides: “Member States shall ensure that renewable energy communities are entitled to (...) share, within the renewable energy community, renewable energy that is produced by the production units owned by that renewable energy community, subject to the other requirements laid down in this Article (Art. 22) and to maintaining the rights and obligations of the renewable energy community members as customers” (Art. 22.2(b))

The renewable energy communities shall get some assistance and help in their energy transfers within the community. Member States shall ensure that “the relevant distribution system operator cooperates with renewable energy communities to facilitate energy transfers within renewable energy communities.” (Art. 22.4(c))

Generation, consumption, storage and selling of electricity are also important features of a citizens energy community. They are part of its definition in the draft recast Electricity Directive.

The draft recast Electricity Directive regulates electricity sharing within citizens energy communities as follows: “Member States shall ensure that citizens energy communities are entitled to arrange within the community sharing of electricity that is produced by the production units owned by the community subject to the provisions of the Electricity Directive and retaining community members’ rights and obligations as consumers. Where electricity is shared, this shall be without prejudice to applicable network charges, tariffs and levies, in line with a transparent cost-benefit analysis of distributed energy resources developed by the national competent authority.”(Art. 16.2a(e))

3.4 Common for self-prosumers and Renewable Energy Communities

3.4.1 Consumer rights

The RED II provides for the maintenance of consumer rights both in relation to renewables self-consumers and renewable energy communities.

In relation to renewables self-consumers it requires from Member States to ensure that renewable self-consumers are entitled to maintain their rights and obligations as final consumers. (Art. 21.2(c))

In relation to renewable energy communities, it requires from Member States to set rules, which secure the equal and non-discriminatory treatment of consumers that participate in the renewable energy community. (Art.22.4(i)) Final consumers, in particular household customers, shall be entitled to participate in a renewable energy community without losing their rights or obligations as final customers. (Art. 22.1) The RED II also provides that sharing of self-produced energy within a renewable energy community must be done in such a way that rights and obligations of the renewable community members as customers are maintained. (Art. 22.2(b))

In addition, the draft recast Electricity Directive (Art. 16.1(c)) provides that “shareholders and members of a citizens energy community shall not lose their rights and obligations as household customers or active consumers”. It also includes a whole chapter on consumer empowerment and protection (applying to all consumers). Retaining community members’ rights and obligations as consumers is also mentioned in the context of sharing of electricity within a community.

3.4.2 Energy suppliers

The RED II does mention that renewable energy communities may be considered to be energy suppliers. Renewable energy communities that supply energy must be subject to provisions relevant for such activities. Renewable energy communities must be subject to a non-discriminatory treatment with regard to their activities, rights and obligations as suppliers (as well as final consumers, generators, distribution system operators or as other market participants).

The possibility of acting as an energy supplier is not mentioned in the RED II in relation to renewables self-consumers.

According to the draft recast Electricity Directive, citizens energy communities must *be* "treated in a non-discriminatory and proportionate manner with regards to their activities, rights and obligations as final customers, generators, suppliers, distribution system operators or market participants engaged in aggregation." (Art.16.2a(b)) It is also interesting to note that the draft recast Electricity Directive mentions explicitly a possibility for Member States to grant citizens energy communities with a right to manage the distribution network.

3.5 Energy markets

3.5.1 Participation in energy markets

The RED II (Art. 22.2(c)) requires from Member States to ensure that renewable energy communities are entitled to access all suitable energy markets. They must be able to do so both directly or through aggregation. This access to markets must be non-discriminatory.

In addition, the RED II also recognises a necessity for renewable energy communities to participate in the costs of the system. It provides that renewable energy communities must be subject to fair, proportionate and transparent procedures, which ensure that renewable energy communities contribute 'properly' to the overall cost sharing of the system ("contribute in an adequate, fair and balanced way to the overall cost sharing of the system in line with a transparent cost-benefit analysis of distributed energy sources developed by the national competent authorities" (Art. 22.4(d)). These procedures include registration and licensing procedures, cost reflective network charges and relevant charges, levies and taxes. (Art. 22.4(d))

Also the draft recast Electricity Directive provides in relation to citizens energy communities that they must have "access all electricity markets either directly or through aggregation in a non-discriminatory manner". (Art. 16.2a(a))

3.5.2 Dynamic electricity price contracts / time-of-use contracts

It is the draft recast Electricity Directive – and not the RED II – that describes dynamic electricity price contracts. These are electricity supply contracts between a supplier and a final customer that reflect the price variation at the spot markets including day ahead and intraday markets, at intervals at least equal to the market settlement frequency. (Art. 2.11 of the draft recast Electricity Directive)

We mention it here as some studies have also recently suggested that a more robust definition of electricity prosumers would incorporate elements such as the ability to react to dynamic pricing (as well as the use of demand response, and integration with smart grid infrastructure) (Bremdal, 2011).

The draft recast Electricity Directive also provides some other provisions relevant to electricity pricing, which may be less relevant for prosumers. In addition, it also regulates issues such as smart metering or comparison tools (which include dynamic price contracts), which may facilitate certain activities of prosumers.

3.5.3 Permits to get access to the grid

Access to the grid is important for individual and collective prosumers in order to be able to sell their surplus electricity. It is also important for them to be active market players.

The RED II regulates access to the grid procedures mainly in its Articles 16 and 17. Article 16 provides rules on organisation and duration of the permit granting process (incl. administrative contact points), while Article 17 sets some rules on a simple-notification procedure for grid connections. The simple-notification procedure is particularly relevant for renewables self-consumers (and demonstration projects) with an electrical capacity of 10,8 kW or less.

Also the draft recast Electricity Directive regulates grid access. In particular, Art. 6 requires Member States to implement a system of third-party access to the transmission and distribution systems. These should be “based on published tariffs, applicable to all customers and applied objectively and without discrimination between system users”. Art. 6 provides also that the transmission or a distribution system operator may refuse access where it lacks the necessary capacity. This may happen based on objective and technically and economically justified criteria. The reasons for refusal must be provided in such a case. Relevant information on measures that would be necessary to reinforce the network must be provided by the transmission or distribution system operator. The same rules apply to citizens energy communities that manage distribution networks.

3.5.4 Single administrative contact points

The RED II (Art. 16) requires Member States to set up and designate one or more contact points which shall, upon request, guide applicants through and facilitate the entire administrative permit application and granting process.

“The permit granting process shall cover the relevant administrative permits to build, repower and operate plants for the production of energy from renewable sources and assets necessary for their connection to the grid.” (Art. 16.1, forth sentence)

“The contact point shall guide the applicant through the administrative permit application process in a transparent manner up to the delivery of one or several decisions by the responsible authorities at the end of the process, provide the applicant with all necessary information and involve, where appropriate, other administrative authorities.” (Art. 16.2, first sentence)

“The contact point shall make available a manual of procedure for developers of renewable energy production projects and shall provide that information also online, addressing distinctly also small-scale projects and renewables self-consumers projects.” (Art. 16.3, first sentence)

The RED II provides some further requirements concerning contact points, which Member States have to comply with, e.g. the maximum duration of the permit-granting process, an obligation to ensure that applicants have “easy access to simple procedures for the settlement of disputes concerning the permit-granting process and the issuance of permits to build and operate renewable energy plants, including, where applicable, alternative dispute resolution mechanisms” (Art. 16.5 second sub-paragraph), etc.

In addition, the draft recast Electricity Directive (Art. 25) imposes on Member States a requirement to establish single points of contact that would provide customers with all of the necessary information concerning their rights, current legislation and the means of dispute settlement available to them in the event of a dispute. It also specifies that these contact points can be part of general consumer information points.

The contact points provided for by the two above mentioned EU Directives are complementary.

3.6 Incentives

Incentives applicable to all electricity from renewable sources apply also in relation to renewable self-consumers and renewable energy communities. In that respect Art. 4 of the RED II provides for a possibility for EU Member States to apply support schemes for electricity from renewable sources in order to incentivise integration of electricity from renewable sources in the electricity market. Art. 4 of the RED II provides also further details on the support schemes for energy from renewable sources (e.g. a requirement that “support schemes for electricity from renewable sources shall be designed so as to maximise the integration of electricity from renewable sources in the electricity market and to ensure that renewable energy producers are responding to market price signals and maximise their market revenues” (Art.4.3 first sub-paragraph of the RED II). It is complemented by Art. 5 regulating opening of support schemes for electricity from renewable sources and Art.6 on stability of financial support.

In addition, the RED II talks also about ‘enablers’ or ‘facilitators’, i.e. an enabling framework which must be set by Member States in order to promote and facilitate the development of renewable energy communities. According to Art. 22.4 of the RED II, such a framework should ensure, i.e.

- tools to facilitate access to finance and information are available;
- regulatory and capacity-building support is provided to public authorities in enabling and setting up renewable energy communities, and in helping authorities to participate directly;
- the relevant distribution system operators cooperate with renewable energy communities to facilitate energy transfers within renewable energy communities;
- renewable energy communities are subject to fair, proportionate and transparent procedures, including registration and licensing procedures, and cost-reflective network charges, as well as relevant charges, levies and taxes, ensuring that they contribute, in an

adequate, fair and balanced way, to the overall cost sharing of the system in line with a transparent cost-benefit analysis of distributed energy sources developed by the national competent authorities.

Only certain of the minimum elements of the enabling framework listed in Art. 22.4 of the RED II have been mentioned here.

It is interesting to mention that the enabling system, although required as part of the transposition of the RED II, will have to be considered by a Member State on a regular basis. It is because its major principles and implementation will have to be included in progress reports and updates of the integrated national energy and climate plans that Member States submit to the European Commission under the EU Governance Regulation. (Art. 22.5 of the RED II)

It may be expected that such regular overview may potentially lead to amendments in the national legislative framework.

3.7 Barriers

The RED II recognises the need to assess and address the barriers and potential of development of renewable energy communities. The EU legislator, aware that these may be different in different countries, requires that Member States carry out an assessments of the existing barriers and potential of development of renewable energy communities in their territories (Art.22.3). There is no deadline as to when these assessments are due. One can argue though that this should happen before the RED II Directive is transposed by the EU Member States into their national regulatory frameworks.

Incentives and barriers are not particularly addressed by the Electricity Directive in relation to citizens energy communities.

4. Country Factsheets

In what follows we present the results of our analysis of the regulatory frameworks of nine EU countries (i.e. Belgium/Flanders; Croatia; France; Germany; Italy; Portugal; Spain; Netherlands and the United Kingdom/Great Britain). The results are presented in the form of tables which provide a set of facts for each country. The data presented has been collected through the analysis of legal documents (listed in the Annex 1) and the results of an interview questionnaire (questionnaire used is presented in Annex 2) applied to legal experts in each country.

4.1 Belgium/Flanders

Belgium is a federal state composed of three communities and three regions.

Energy is regulated both at the federal and regional levels. Regions are responsible for regulating the distribution of energy (except transport), green energy, cogeneration, efficient use of energy and energy savings. The federal government is responsible for regulating the production (large power plants directly connected to the high voltage grid), security of supply, the regulation and development for off-shore wind-energy and the transmission of energy.

Regulatory framework on self-consumption applying in Flanders is composed of federal legislation (laws, decrees regarding protection of the consumers) and regional (Flemish) legislation (decrees, regulations regarding the operation of the distribution grid and tariffs).

The main federal law is Loi du 29 avril 1999 (Loi relative à l'organisation du marché de l'électricité / Wet van 29 april 1999 betreffende de organisatie van de elektriciteitsmarkt– Law of 29 April 1999 on the Organisation of the Electricity Market).

It is complemented by royal decrees (arrêtés royaux) regulating the technical aspects of energy transmission, production and security of supply.

Table 2 Belgium/Flanders: RES Self-Consumer (Prosumer) Definitions; Right to generate energy; Storage; Restrictions and Selling of Surplus Energy

RES Self-Consumer (Prosumer)	
Definition	<p>There is no definition of a renewable self-consumer or prosumer (although it is possible to produce its own energy and consume it).</p> <p>Despite the lack of a proper definition, self-consumption has been regulated for a long-time in Flanders, e.g. the sugar industry has been considered for years a self-consumer. And households that have PV panels on their roof with a net meter are now called prosumers by the grid operator and the regulator. They pay a prosumer tariff (ca. 100 €/kVA) as a fee for the use of the grid.</p>
Right to generate energy for self-consumption	It is possible to produce its own energy and consume it.
Storage of energy	<p>Storage of electricity in Flanders is not regulated by legislation but by technical guidelines. The conditions related to the storage are of a technical nature.</p> <p>One must comply with the technical guidelines to get a connection to the grid. It is the grid operator who controls. The guidelines are approved by the regulator.</p>
Restrictions on size of generation capacity allowed to input into the grid/size of self-production when injecting into the grid	Limits on the amount of electricity that can be put into the grid are not imposed by regulations but are of technical nature. They appear when the distribution system cannot cope with the increased capacity. In case of big installations (wind turbines), the projects need to be preceded by studies on the capacity adequacy of the grid. In case the grid capacity is not enough, the investor must pay for the relevant installation (e.g. cable).
Selling of self-generated energy and remuneration for surplus energy put into the grid	<p>Most of the small consumers have net meters (which turn slower or even backwards when electricity is self-produced).</p> <p>When the meter turns back, then one has a lower consumption (and saves on the kWh).</p>

Since the grid fee depends predominantly on the level of the metered consumption, a prosumer will have to pay low grid fee. However, the prosumer uses the grid in summertime for injection of PV and in wintertime for the demand of energy coming from the grid. To compensate this effect, a prosumer tariff (a fixed amount along the capacity of the PV system) is introduced. Currently, in Flanders, small prosumers (with a meter that turns back) are not paid for the surplus of energy they inject in the grid. By introducing new digital meters (next years) this will probably change.

It is possible to sell the surplus of self-generated electricity. However, there is a problem with selling self-produced energy, which is related to metering. In order to sell electricity to the grid, the self-consumer must have a meter that gives a Distribution System Operator (DSO) or a supplier very precise data on self-production and consumption (quarterly meter, taking measures every 15 min) and the amount injected into the grid. Such meters are normally not installed by individual consumers (they are installed in installations producing electricity over certain level: more than 10 kW).

Table 3 Belgium/Flanders: Renewable Energy Communities; Definition; Legal Framework; REComs in the same building or multi-apartment block; Legal forms; Legislation; Generation, Consumption and Storage

Renewable Energy Communities (REComs)	
Definition	There is no definition of an energy community in Flemish law
Legal framework for setting up REComs	See above in the introductory part on Belgium/Flanders. There is no specific legislation on energy communities in Flanders.
RECom in the same building or multi-apartment block	Each household must have its own meter and must be connected to the grid. It is related to the fact that each household has a right to choose its supplier. Therefore, it is not possible for several households to have single common meter and single connection to the grid (while individual sub-meters for individual households are installed and managed internally by the cooperative/energy community). Therefore, it is not possible to have a RECom created in the same

	<p>building or multi-apartment block.</p>
<p>Legal forms for REComs</p>	<p>Energy communities may be created as cooperatives, which is a legal form available for different sectors and not only energy (therefore, it may not address all the specificities of energy communities). This legal form is the most appropriate for energy communities as it allows adding small shareholders which are simultaneously consumers and gathering continuously new capital for new investments (that is not the case with other forms of enterprises).</p>
<p>Legislation enabling and providing specific rights to REComs</p>	<p>There is no specific legislation on energy communities in Flanders.</p>
<p>Generation, consumption, storage and selling of energy by REComs (in particular, when rules are different from general rules applicable to all self-consumers/prosumers)</p>	<p>It is possible in Flanders to produce energy and consume this self-produced energy. It is also possible to store energy.</p> <p>There are no special rules for cooperatives on generation, consumption, storage and selling of energy from renewable sources (the rules are the same as for individual self-consumers).</p> <p>This is expected to change in the near future as a consequence of the implementation of the new EU directives regarding the electricity market and renewables.</p>
<p>Sharing of electricity within the RECom</p>	<p>It is forbidden to exchange electricity directly with your neighbour. It is also forbidden for energy communities to operate a private grid and balance production and demand on a common level, because of the free choice for every household to choose an energy supplier on the market.</p> <p>Energy communities use the grid to exchange electricity among their members. For the exchange of energy, they have to pay to the grid operator a cascade tariff in which is included a price for the use of low voltage grid, the middle voltage grid and the high-voltage grid.</p> <p>Neighbouring industrial consumers can exchange energy more easily by installing a private line / grid.</p>

Table 4 Belgium/Flanders: Individual prosumers and Renewables Energy Communities; Consumer rights; Energy Supplier

Individual prosumers and Renewable Energy Communities (REComs)	
Consumers' rights	<p>Self-consumers remain considered as consumers when producing energy and selling it to the grid. Therefore, they maintain their consumer rights.</p> <p>However, small consumers have to pay to the grid operator for the use of the grid.</p>
Classified as energy supplier?	<p>In Flanders you have to ask for a permit to be a supplier. A supplier uses the grid and has to pay the grid tariff. A supplier has to get an equilibrium between demand and supply and works therefore together with an access responsible party (or is self also an access responsible party).</p> <p>An energy cooperative, called also a REScoop (which is an energy community), can like any other private party become a supplier.</p> <p>A cooperative can also sell its production to another supplier. The regulatory framework (energy) makes no distinction between a cooperative and other forms of private companies.</p>

Table 5 Belgium/Flanders: Participation of Self-consumers and/or Renewables Energy Communities in Energy Markets; Dynamic Electricity Price Contracts; Permitting Requirements; Administrative Contact Points

Participation of Self-consumers and/or Renewables Energy Communities in Energy Markets	
Are RES self-consumers and REComs allowed to participate in energy markets?	<p>Yes, self-consumers and REComs can participate in energy markets.</p> <p>There are no special rules for REComs to participate in energy markets. They participate in energy markets in the same way as any other actors. They can do that directly or through aggregators. The necessary conditions are to have technical and financial capacity to participate in energy markets. Because a critical mass to participate on EPEX SPOT Belgium (formerly Belpex)⁸ is needed, small self-consumers have to aggregate or have to sell their production to an aggregator.</p>
Dynamic electricity price contracts for	The only form of flexible tariffs for small consumers

⁸ EPEX SPOT Belgium (formerly Belpex) is a power exchange for anonymous, cleared, short term trading in electricity, providing the market with a transparent reference price

<p>self-consumers and/or REComs/time-of-use contracts for self-consumers and/or REComs</p>	<p>are day/night & weekend tariffs. For big industrial customers it is also possible to participate in Demand Response activities or negotiate a specific contract with their supplier. In future – when digital meters are widely deployed - it would probably be possible to use dynamic prices for the use of energy and/or the grid.</p>
<p>Permitting requirements on access to the grid</p>	<p>Access of RES-E to the grid is regulated by the basic legislation on energy market and technical regulations by the Flemish Electricity and Gas Regulator (VREG). RES-E is given priority in both connection to and use of the grid. Distribution grid operators are obliged to finance grid expansion.</p> <p>The main issue for getting access to the grid is of a technical nature. The grid must be strong enough to allow that additional electricity to be fed into it. If it is necessary to reinforce the grid and upgrade it (which implies the whole planning procedure and construction), the investor/ the interested self-consumer may be obliged to provide necessary funds for it (as an up-front payment).</p>
<p>Single administrative contact points for permit granting process</p>	<p>There are no single administrative contact points for permit granting processes for renewable self-consumers and REComs.</p>

Table 6 Belgium/Flanders: Incentives and Barriers

<p>Incentives and Barriers</p>	
<p>INCENTIVES (legislative, policy and support measures, incl. finance), especially for REComs</p>	<p>There are no incentives in Flanders to create and run REComs.</p> <p>There are some incentives for renewable self-production. These are in particular,</p> <ol style="list-style-type: none"> 1. Financial schemes for energy efficiency in building renovation – to get financial incentives, the building renovation must achieve certain energy efficiency standards. These standards cannot be achieved if renewables sources of energy are not integrated into the renovated building (solar panels, sun boiler, heat pump, wood pellet burner). There is also a possibility to participate in the energy cooperative instead of installing integrating the RE in the building. 2. Green certificates support mechanism for producers, which guarantees certain revenue

	<p>but, due to recent developments, would not provide much profit (for big solar self-consumers it may generate max 5% benefit, for big wind self-consumers it may generate max 8% profit); Green certificates are given to producers (not to consumers) to support their investment; There are no more green certificates for small self-consumers investing in solar panels on their roof (less than 10 kW) since they use an analogue meter that can turn backwards and save on the grid fee.</p>
<p>BARRIERS (legislative, regulatory and political), especially for REComs</p>	<p>Lack of regulations on the use of wind as a common good. Wind energy belongs to the party who comes first, which in practice means the privatization of a common good.</p> <p>No suitable places for wind turbines available for non-industrial self-consumers (available places reserved for big energy companies).</p> <p>Lack of regulations on energy communities. They should have the right to be economically and democratically involved in the exploitation of RES in their environment. Therefore, the government should install a wind concession process.</p> <p>Lack of a requirement (existing in other Belgian regions) according to which a developer of each wind project should be encouraged to offer a certain % share to citizens, municipalities etc. (<i>while this is not a real barrier, it is a lost opportunity as such a requirement would allow more involvement by citizens</i>)</p>

4.2 Croatia

In Croatia, prosumers⁹ and RECs are regulated by multiple pieces of legislation, with the Renewable Energy Act (Articles 16 (for RECs) and 44 (for prosumers)) being the most important one.

Other important pieces of legislation and regulatory acts applicable to prosumers and RECs are: Energy Act, Electricity Market Act, Energy License Regulation, General Terms on Usage of Grid and Supply with Electricity, Rules on Organization of Electricity Market, Distribution System Grid Rules, Rules on

⁹ In the Croatian tables in the text a term “prosumers” with small “p” is used, it refers to both Self-Supplying Consumer and Prosumers together. When the term “Prosumer” with a capital letter “P” is used, it refers to only one type of prosumers – the Prosumer as defined in the below table text.

Connection to the Distribution Grid, Rules on Connection to the Transmission Grid, Decree on Issuance of Energy Approvals and Determination of Conditions and Terms for Connection to Electro-energy System, Energy Efficiency Act, Decree on Determination of the Guarantees of Origin System, Methodology on Determination of Origin of Electricity, etc.

Both RECs and prosumers concepts are recognized under the Croatian law for some time already. Their legal situation has recently been slightly amended. The most recent amendments of the Renewable Energy Act, dating December 2018, seem to be, in certain aspects, a step back in relation to REC's position. This Act also introduced some changes in relation to prosumers. In particular, it introduced a new player – User of Facility for Self-Supply.

Table 7 Croatia: RES Self-Consumer (Prosumer): Definitions; Right to generate energy; Storage; Restrictions and Selling of Surplus Energy

RES Self-Consumer (Prosumer)	
Definition	<p>The prosumer's concept is recognized and defined under the Renewable Energy Act which differentiates between: (i) User of Self-Supplying Facility (Cro. <i>korisnik postrojenja za samoopskrbu</i>) ("<u>Self-Supplying Consumer</u>") and (ii) End-Buyer with Own Production (Cro. <i>krajni kupac s vlastitom proizvodnjom</i>) ("<u>Prosumer</u>").</p> <p><u>Self-Supplying Consumer</u> is defined as a household end-buyer of electricity with a facility for self-supply of electricity from RES or highly efficient co-generation connected to its own installation. 'Own installation' may imply internal electrical installation of the consumer which do not fall under the scope of management or maintenance of the DSO.</p> <p>Self-supplier's surplus of energy self-produced within a calculation period may be taken over by a supplier or another market participant with whom a respective agreement has been concluded, provided that within a calendar year the quantity of electricity delivered to the grid is less or equal to the electricity taken over from a supplier.</p> <p><u>Prosumer</u> is defined as an end-buyer of electricity whose installation is connected to a production facility for generation of electricity from RES or highly efficient co-generation, and whose electricity satisfies the needs of the end-buyer. A prosumer may deliver surplus of self-produced electricity into the transmission or distribution network.</p> <p>It can be concluded from the above definitions that Self-Supplying Consumers are households only, while Prosumers can be both household customers and</p>

	<p>entrepreneurs ('poduzetnik')¹⁰. In addition, in order to qualify as Self-Supplying Consumer, electricity delivered to the grid must be equal or less to the electricity received from the grid (purchased from the supplier), calculated within a year period.</p> <p>Selling of the surplus electricity to the grid by self-consumers was possible in Croatia even before the introduction of the above definitions. At that time, in spite of the lack of explicit recognition in the law, particular individual projects (integrated solar power plant producing electricity for own needs with sale of surplus to the supplier) could sell surplus electricity to the electricity supplier.</p>
<p>Right to generate energy for self-consumption</p>	<p>Under the Croatian law it is possible to generate its own energy and self-consume it.</p>
<p>Storage of energy</p>	<p>Storage of energy is, in general, recognized under the Croatian law.</p> <p>The Energy Act provides a definition of an energy object, which is a construction or part of a construction intended to be used for production, transmission, storage and distribution of energy.</p> <p>A technical document - Distribution System Grid Rules ("DS Grid Rules") provides a definition of an electro-energy object, which is a construction or a part of a construction for production, storage and distribution of electricity, and which is part of the distribution system. DS Grid Rules also mention tanks for storage of electricity (Cro. spremnici za pohranu električne energije). The tanks are defined as devices for conversion of certain quantity of electricity to a type of energy which can be stored to be later transformed into the electricity that can be injected into the grid.</p> <p>It is important to note that storage of electricity (unlike storage of gas, biofuels or oil and oil products) is not recognized as an energy activity under the Electricity Market Act nor as an activity which would require obtaining an energy license (a license for undertaking an energy activity).¹¹</p>

¹⁰ "Poduzetnik" is every legal or physical/natural/private person which buys electricity for the purpose of production of goods and/or provision of services, and is not using it in its own household.

¹¹ Energy activities (on electricity market) are production, transmission, distribution, supply and trade of electricity, as well as organization of electricity market. Each of these activities requires issuance of its own licence.

	<p>The provisions which specifically regulate Self-Supplying Consumers and Prosumers do not provide any regulation concerning storage of electricity. However, the DS Grid Rules when defining basic categories of grid users (in terms of the direction of electricity) mention four types of grid users: (i) buyer, (ii) producer, (iii) Prosumer with a tank for electricity storage and (iv) Prosumer not injecting electricity into the grid. Therefore, it can be concluded that Prosumers are allowed to store electricity in the tanks for electricity storage.</p>
<p>Restrictions on size of generation capacity allowed to input into the grid/size of self-production when injecting into the grid</p>	<p>The restriction concerning the size of load applies in terms of the connection capacity of the electricity production facility.</p> <p>Connection capacity is determined by different documents issued by the DSO or TSO, depending on the type of connection procedure, type of producer and the level of the connection point's complexity. System operators may require preparation of EOTRP (a survey of optimum technical connection solution) or another type of evaluation document in order to determine whether connection is possible and what the technical and administrative conditions of this connection would be.¹² Therefore, requirements and restrictions concerning the grid connection are related to the technical conditions and possibilities and/or requirements of the grid.</p> <p>Another restriction (set in Article 44 of the Renewable Energy Act) concerns suppliers' obligation to take over the surplus of the RES electricity from prosumers. One of the conditions for this to apply is that the connection capacity of all production facilities¹³ at one metering point¹⁴ does not exceed 500 kW.</p>
<p>Selling of self-generated energy and remuneration for surplus energy put into the grid</p>	<p>Article 44 of the Renewable Energy Act explicitly regulates sale of surplus of self-generated energy. It sets out conditions which prosumers must fulfil in order to fall under the scope of application of this Article and to be able to obtain remuneration for the sale of surplus electricity.</p>

¹² DSOs and TSO check both the possibility to connect (and can reject according to the third-party access rules); if any changes to the grid or new technical solutions are needed in order to make requested connection, they order the compliance with these technical requirements.

¹³ A production facility is a self-standing/independent and technically integral/complete facility for production of electricity and heating energy which can consist of more production units.

¹⁴ 'One metering point' covers all production facilities (more production facilities connected to one metering point)

These requirements are: (i) obtaining the status of the eligible electricity producer, (ii) acquiring a right of permanent connection to the grid, (iii) total connection capacity not exceeding 500 kW, (iv) outward connection capacity not exceeding the inward connection capacity, (v) use by a prosumer of the same metering point for delivery and reception of electricity and (vi) keeping data of electricity produced and delivered.

The law sets a formula and additional rules for calculating the minimum remuneration that the supplier is obliged to pay to prosumer for the surplus of electricity injected to the grid. However, the parties are free to agree on a higher remuneration than the minimum set by law.

- Rules applicable to Prosumers

A formula to calculate value of electricity purchased from the Prosumer is set by the law.¹⁵

Calculation period for Prosumers is one month. Supplier decreases Prosumer's monthly invoice for the delivered electricity by the amount calculated according to the above formula.

Prosumer who does not wish to sell electricity surplus to its supplier is obliged to¹⁶ enter into the respective agreement with another market participant for the sale of its surplus energy.

- Rules applicable to Self-Supplying Consumers

Calculation of electricity consumption and, in consequence, the grid usage fee and the fee for RES and CHP of Self-Supplying Consumers¹⁷ is based on the difference between electricity received from and

¹⁵ The formula is as follows: I. $C_i = 0,9 * PKC_i$ if in the calculation period of "i" $E_{pi} \geq E_{ii}$; II. $C_i = 0,9 * PKC_i * E_{pi} / E_{ii}$ if in the calculation period of "i" $E_{pi} < E_{ii}$ – wherein: 1. E_{pi} is total electricity taken over from the grid by prosumer, within calculation period, expressed in kWh; 2. E_{ii} is total electricity delivered to the grid from the production facility owned by the buyer, within calculation period, expressed in kWh; 3. PKC_i is average unit price of electricity the buyer pays to the producer for electricity sold, without the fees for grid usage and other fees and taxes, within calculation period, expressed in kWh.

¹⁶ 'Obliged' is the exact term used by the Croatian law.

¹⁷ This is the fee payable as part of any electricity consumption invoice in Croatia; it consists of the amount of electricity consumption, grid usage fee, tax and fee for incentivizing production from RES and CHP.

injected to the grid.

If, at the end of the calculation period of one month, the amount of electricity injected into the grid is higher than the amount of electricity received from the grid (called working energy (Cro. radna energija)), this surplus electricity must be purchased by the supplier for the price set in the following formula.¹⁸

Table 8 Croatia: Renewable Energy Communities; Definition; Legal Framework; REComs in the same building or multi-apartment block; Legal forms; Legislation; Generation, Consumption and Storage

Renewable Energy Communities (REComs)	
Definition	<p>There is no definition of RECom in the Croatian law.</p> <p>Such a definition is provided in a DRAFT policy document of the Ministry of Environmental Protection and Energy "Expert Basis for Preparation of the Croatian Low Carbon Strategy for Period until 2030 with a Look onto 2050" (the White Book) from May 2017.</p> <p>This document¹⁹ states in that respect: <i>"The term "citizens' energy from renewable energy sources" refers to the decentralized production of renewable energy owned or managed by the citizens, energy cooperatives, local initiatives, local governments, humanitarian institutions, non-governmental organisations or farmers, and which creates values on a local level, kept within certain region. Not all projects arising from using renewable energy sources create special values to the local communities. Implementation of Renewable Energy Directive as well as of the climate change policy is in close connection with the answer to the question who has gained privileged access and opportunity to produce energy from renewable sources and created added values for itself and society. This means implementation of the inclusion principle in the investment process also. It is necessary to set up a</i></p>

¹⁸ The formula is as follows: I. $CiVT=0,8 \cdot CpVT$, II. $CiNT=0,8 \cdot CpNT$, wherein, 1. $CpVT$ is the price of total electricity taken over from the grid by end buyer within calculation period, for duration of a higher daily tariff, expressed in HRK/kWh, 2. $CpNT$ is the price of total electricity taken over from the grid by end buyer within calculation period, for duration of a lower daily tariff, expressed in HRK/kWh, 3. $CiVT$ is the price of total electricity delivered to the grid from the production facility owned by the end buyer, within the calculation period, for duration of a higher daily tariff, expressed in HRK/kWh, 4. $CiNT$ is the price of total electricity delivered to the grid from the production facility owned by the end buyer, within the calculation period, for duration of a lower daily tariff, expressed in HRK/kWh.

¹⁹ Section 7.2.1, in particular: table 7.2 – 4 "Citizens' energy from renewable energy sources"

	<p><i>platform to which the private persons and communities can collectively compete with big investors, thus creating local value and playing important role in energy transition.</i></p> <p><i>It is important to actively include citizens and support innovative models of financing. The strategy supports models of the local citizens' inclusion through ownership model in the construction of the renewable energy projects and other projects of the low-carbon development, by using different models such as setting up of cooperatives or other similar platforms, including the financing through the banks whose primary goal is investment in the community development (so called "ethical bank") and micro-credit lines. One of the motivations is improvement of the societal acceptance of the new projects (i.e., to decrease NIMBY "not in my backyard" effect) or capacities' extension on the existing locations."</i></p>
<p>Legal framework for setting up REComs</p>	<p>The main legislative act regulating REComs is the Renewable Energy Act.</p>
<p>RECom in the same building or multi-apartment block</p>	<p>It is possible to develop, own and operate renewable energy projects located in the same building or multi-apartment block.</p> <p>It could be difficult though in practice to consider projects in the multi-apartment blocks or buildings to be REComs.</p> <p>REComs created in a multi-apartment block or building would not be able to share produced energy with its members, if they do not obtain a supplier license and sign a supplier agreements between itself as supplier and consumers (i.e., residents in the apartments of a building).</p> <p>Each apartment within the multi-apartment building must be connected directly to the public grid via its own metering point. Therefore, it would not be possible to share electricity received from the grid to another apartment.</p> <p>Article 26 of the General Terms for Grid Usage and Electricity Supply (Official Gazette no. 85/2015) ("General Terms") stipulates that "the grid user is not entitled to enable another legal or private person to connect to the building or part of the building over its connection point." This means that each apartment</p>

	<p>within the multi-apartment building must be connected directly to the public grid via its own metering point. It also means that from a technical point of view, one of the apartments would not be allowed to share (push) electricity received from the grid to another apartment.</p> <p>It may theoretically be possible for a RECom to qualify as consumer and thus fall under the application of Article 44 of the Renewable Energy Act. That could be possible when a RECom is directly connected to a DSO grid and when RECom enters into contractual relations with DSO (for usage of grid) and with the supplier (for purchase of electricity for own consumption of the production plant). However technical aspects of such an arrangement should be analysed.</p>
<p>Legal forms for REComs</p>	<p>The best legal form for a RECom would be a cooperative regulated by the Croatian Cooperatives Act.</p> <p>Cooperatives are legal persons (from the moment of their registration in the respective court registry). They are based on an open and voluntary participation and are autonomous. Members of a cooperative can be any capable physical or legal persons, incl. local authorities, municipalities²⁰ and SMEs.</p> <p>Under the Croatian law cooperatives are entitled to obtain an energy license since they have legal personality and are considered legal persons (Cro. <i>pravne osobe</i>).</p> <p>According to the relevant Croatian energy regulatory framework, in particular the Energy Act, Electricity Market Act and Energy License Regulation, an entity willing to undertake activity of electricity production is obliged to obtain the respective energy license from the Croatian Energy Regulatory Agency - HERA.</p> <p>However, the law provides also some exemptions from this energy license requirement. Private and legal persons (i) whose production facility's installed capacity does not exceed 1 MW or (ii) who produce electricity</p>

²⁰ Local authorities, including municipalities, are under the Local Governance Act considered legal persons

	<p>exclusively for their own needs (consumption) are not obliged to obtain respective energy license for electricity production.²¹</p> <p>This implies that in the majority of cases prosumers do not have to obtain from HERA an energy license for electricity production.</p> <p>This is because under Article 44 of the Renewable Energy Act production of renewable electricity by prosumers (Prosumers and Self-Supplying Consumers) is limited to 500 kW (thus less than the above set limitation of 1 MW) of connection capacity (if a prosumer wants to be covered by a suppliers' obligation to purchase its surplus RES electricity.</p> <p>Other legal forms such as limited liability companies could also potentially be recognised as REComs in the meaning of the RED II. However, limited liability companies are not subject to open participation requirement as the law does not impose an openness requirement onto their founders or shareholders. This, however, does not mean that the limited liability companies are necessarily restricted from stipulating application of openness principle towards new members within the company's corporate documents.</p>
<p>Legislation enabling and providing specific rights to REComs</p>	<p>Before the latest amendments of December 2018, the Renewable Energy Act seemed to have been more favourable to REComs creation than now.</p> <p>According to current (but also previously applicable) provisions of the Renewable Energy Act, persons interested in construction of power production facilities on state owned land may express their interest to the competent ministry which, based on such an interest, prepares and executes public bidding procedure for an establishment of a right to build and/or easement right on a certain location.</p> <p>According to the former provision of Article 16 (11) of the Renewable Energy Act, the criteria for choosing the best bid depended on the following minimum requirements: (i) planned annual quantity of produced</p>

²¹ Note: These are not the only exemptions provided by the law.

Generation, consumption, storage and selling of energy by REComs (in particular, when rules are different from general rules applicable to all self-consumers/prosumers)

electricity, (ii) savings of the primary source of energy (for cogenerations), (iii) planned number of workers needed for using the production facility, (iv) current level of the project's development according to the official documents issued by the public authorities, (v) participation of legal and private persons in the ownership structure of the project (indication of persons living / undertakings situated in the area under the competency of local authority on whose area the project is being developed), and (vi) contribution to the development of local community.

The last two requirements ((v) and (vi)) were important for REComs' development. Bids which anticipated stronger inclusion of citizens or businesses from an area of the project's development (including their entrance in the ownership structure of such projects), had a better chance to be awarded with the land and, in consequence, further develop the RES power plant project.

The latest amendments to the Renewable Energy Act, shrank these rights/benefits/advantage. The currently applicable provision stipulates that a new criterion (replacing previous requirements (v) and (vi)) applied for choosing the best bidder is the amount of the fee payable to the local community and/or a possibility for participation of and/or share in the project by a local authority (city or municipality) where the project will be developed.

Therefore, the new solution has in fact limited the advantage of REComs only to local authorities, whereas before, it also included legal and private persons living and/or undertakings located in the project area.

RECs are entitled to generate, consume, store and sell electricity. The relevant rules applicable to them are the same as applicable to prosumers.

Sharing of electricity within the RECom

Sale of electricity to an end-buyer (Cro. *krajnji kupac*)²² requires obtaining a supply licence; therefore, peer-to-peer trading without a license is not allowed.

The above limitation shall apply also in case when the electricity produced comes from the inside, i.e., not from the grid, e.g., from an integrated solar power plant constructed on the roof of such building.

On the other hand, it is possible for a RECom to create and manage a closed distribution system. This activity would probably require a supply licence. Electricity Market Act and by-laws allow the establishment of a closed distribution system ("CDS") provided certain requirements are met. CDS is under the Electricity Market Act (Article 37) defined as a system which distributes electricity within a geographically closed industrial and/or commercial location, or locations of mutual services, and is entitled to obtain the CDS status if:

- (i) the calculation metering point of the system's owner is connected to the transmission grid (a grid of high or a very high voltage),
- (ii) it does not distribute electricity to households other than the households which are found in the area encompassed with the subject system,
- (iii) due to the special technical or security reasons, business undertaking or production processes of such grid users are integrated,
- (iv) the system distributes electricity primarily to the owner or operator of the CDS and/or its connected subjects, wherein the condition is considered fulfilled if at least 80% of the electricity consumed falls onto the owner or operator of the CDS and/or its connected subject.

²² 'End-buyer' is an exact translation of the term *krajnji kupac* used in the Croatian law.

Table 9 Croatia: Individual prosumers and Renewables Energy Communities; Consumer rights; Energy Supplier

Individual prosumers and Renewable Energy Communities (RECs)	
Consumers' rights	<p>Each end-consumer enters into electricity supply agreement with a selected supplier. Such agreement must contain provisions as determined in the General Terms. The applicable laws stipulate rights of an end-consumer.</p> <p>In order to sell surplus of electricity produced by an end-consumer (acting as a Self-Supplying Consumer or a Prosumer), the end-consumer and its supplier must regulate such a sale in accordance with the relevant provisions on the purchase of the electricity surplus. The supplier is, upon the end-consumer's (now Self-Supplying Consumer or Prosumer) request, obliged to regulate, and thus agree with the prosumer, the purchase of the surplus electricity produced within the end-consumer's production facility (either by amending the existing agreement or concluding a new one).</p> <p>The law does not mention anything regarding the loss of the Self-Supplying Consumer's or Prosumer' consumer rights.</p> <p>Interpretation of the relevant provisions of the Renewable Energy Act leads to the conclusion that the Self-Supplying Consumer or Prosumer continues to keep its consumers rights as set out in its initial electricity supply agreement.</p>
Classified as energy supplier?	<p>Corporate power purchase agreements between an electricity producer (as a seller) and an end-consumer (as a buyer) are not possible in Croatia. This is due to the legislative provisions according to which only suppliers are entitled to sell electricity to end-consumers.</p> <p>Therefore, in order for REComs to be able to sell electricity to end-consumers, REComs would have to act as suppliers which means registering their supply activity in the court registry, obtaining electricity supply license, arranging relations and enter into agreements with HROTE – Croatian Energy Market Operator and HOPS – Croatian TSO.</p> <p>Self-Supplying Consumers and Prosumers could be acting as sellers but not suppliers of electricity, since they cannot sell their surplus electricity to end-consumers, but to a supplier. Only selling to end-consumers requires obtaining an electricity supply licence and classifying as a supplier.</p>

Whether any entity, including RECom, will be granted a supplier licence depends on whether or not all conditions as set out under the applicable laws have been met. This primarily refers to the conditions stipulated for obtaining an electricity supply licence from HERA which are split into three groups (professional, technical and financial) and must be held at the moment of application and for the duration of the subject licence.

Table 10 Croatia: Participation of Self-consumers and/or Renewables Energy Communities in Energy Markets; Dynamic Electricity Price Contracts; Permitting Requirements; Administrative Contact Points

Participation of Self-consumers and/or Renewable Energy Communities in Energy Markets	
<p>Are RES self-consumers and REComs allowed to participate in energy markets?</p>	<p>Yes, prosumers and REComs are allowed to participate in energy markets provided all relevant conditions are met by them. These conditions, in general, are the same as for other market participants.</p> <ul style="list-style-type: none"> • REComs <p>REComs wishing to act on the market as a producer, wholesale trader or supplier, must obtain a relevant licence and regulate its position with other stakeholders such as HOPS (Croatian Transmission System Operator) and HROTE (Croatian Energy Market Operator). Participation in organised markets such as CROPEX – Croatian Power Exchange would imply registering at CROPEX by entering into a membership agreement and then satisfying all conditions set out in different documents which regulate trading thereof.</p> <ul style="list-style-type: none"> • Individual prosumers <p>In theory both Prosumers and Self-Supplying Consumers should be able to sell their surplus electricity not only to a supplier but also to a (wholesale) trader (acting as another market participant and as such defined as electro-energy subject or another legal or private person registered for activities of purchase and/or sale of electricity based on the rights for participation on electricity market).</p> <p>However, other acts question a possibility to buy electricity from a Prosumer (the Rules on Organization of Electricity Market only recognise the right of a supplier (but not a trader)); actual sale of electricity to a wholesale trader requires complying with certain</p>

Dynamic electricity price contracts for self-consumers and/or REComs/time-of-use contracts for self-consumers and/or REComs

conditions and obligations set out for trading, which end-consumers will not be able to meet.

In consequence, Prosumers and Self-Supplying Consumers in practice would probably not be able to sell surplus of self-produced electricity to a (wholesale) trader but to a supplier only.

Obtaining by a prosumer of an energy licence for sale of its surplus electricity in the market is not needed.

A supplier not falling under the scope of a universal (public) service obligation, provides electricity to end-users on the basis of electricity supply agreements. End-users are free to choose their supplier. Supplier and consumer are free to agree on the quantity and price of electricity purchased and consumed (as well as other calculation elements (Cro. *obračunske elemente*)), while complying with the applicable rules. (Art. 46 of the Electricity Market Act)

These 'applicable rules' that have to be respected by a supplier and end-user concern primarily the grid usage fee. Grid usage fee is payable by two categories of end consumers (i) households which are always connected to the low voltage grid and (ii) entrepreneurs (Cro. *poduzetništvo*) which are further divided into those being connected to the high voltage and very high voltage grid, medium voltage grid and low voltage grid.

General Terms for Grid Usage and Electricity Supply differentiate between several (relevant) tariff models – Blue, White and Red. Each of these tariffs can be chosen by both the households and entrepreneurs. The Red tariff model covers only those households and entrepreneurs that have a connection capacity of more than 20 kW. The White and Red tariff models provide for lower and higher daily tariffs (NT and VT). The Blue tariff model offers one unique tariff.

This leads to the conclusion that some sort of a forerunner of a demand response element is already taken into account and made applicable by the law itself.

The rules regulating demand response and dynamic prices of electricity for REComs and prosumers are not different than for the rest of the market participants. Prosumers with connection capacity of up to 500 kW do have a right to a minimum price calculated as per formulas explained in one of the earlier answers.

Permitting requirements on access to

Access to the grid is preconditioned with a list of steps

the grid

which have to be undertaken. These steps include: preparing and submitting certain documents, obtaining certain permits, approvals and licences and entering into certain agreements. These documents, permits, approvals, licences and agreements differ depending on the type and/or size of the production facility, on whether the production facility in question is a prosumer or not, etc.

These documents, permits, approvals, licenses and agreements are also applied for, submitted to and entered into with different stakeholders (e.g., energy approval (Cro. *energy approval*) is obtained from the competent ministry, electro-energy approval (Cro. *elektro-energetska suglasnost*), grid connection and grid usage agreements are obtained from and entered into with DSO or TSO, the eligible producer status and energy license for undertaking energy activity are obtained from HERA, etc.).

The part of the connection procedure falling solely under the grid operator's competency, is regulated in detail by the Rules on Connection to the Transmission System (HOPS, 4/2018), the Rules on Connection to the Distribution System (HEP-ODS, 4/2018) and the Decree on Issuance of Energy Approvals and Determination of Conditions and Terms for Connection to Electro-energy System (Official Gazette no. 7/2018).

Documents that will have to be obtained from or submitted to the DSO or TSO depend on the type of procedure applicable, type of producer and level of the connection point's complexity. The applicable rules differentiate between simple and complex connection point and thus simple and complex connection procedure.

System operators may require preparation of EOTRP (a survey of optimum technical connection solution) or another type of evaluation document in order to determine the possibility for a requested connection.

Single administrative contact points for permit granting process

There are no single administrative contact points for permit granting process for prosumers and REComs.

Table 11 Croatia: Incentives and Barriers

Incentives and Barriers

INCENTIVES (legislative, policy and support measures, incl. finance), especially for REComs

- System of guarantees of origin ("GO")

Croatian law stipulates application of the system of guarantees of origin ("GO").

One GO is equal to 1 MWh of electricity net delivered to the grid. The GO system allows sale of such GOs by the producers of renewable electricity, including REComs and prosumers.

The GOs system is an important incentive for further development of REComs and prosumers' renewable electricity production.

However, as one GO is issued only when 1 MWh of net electricity is delivered to the grid, small prosumers are hardly able to achieve such threshold. Therefore, in the case of prosumers, the GO system mainly applies to aggregators.

Croatian/HROTE's registry of GOs allows opening of a user account by a renewable electricity producer. This producer may then register other producers on the same user account. They can aggregate their production and acquire the number of GOs equivalent to the combined electricity produced and net delivered to the grid.

- Suppliers' energy savings obligation

Energy Efficiency Act imposes an obligation onto suppliers (identified by law²³) to achieve energy savings for their end consumers through a system of energy savings obligations.

Energy savings are achieved through energy efficiency improvement measures. An improvement of energy efficiency may be achieved through different ways listed in law, incl. through application of renewable energy sources for significant or total covering of own consumption of energy in a building and/or users' behaviour.

The Ministry of Energy and Environmental Protection shall, by 30 June of each year, determine an obligation for energy savings (in kWh) for the following year. The ministry shall determine a penalty fee in case of the supplier's failure to achieve certain thresholds of energy savings with their end consumers. This measure is

²³ Suppliers who have in the respective years delivered to their end consumers certain quantity of electricity.

BARRIERS (legislative, regulatory and political), especially for REComs

expected to increase a number of prosumers and, therefore, incentivise prosumerism.

- Tenders supporting RES

Croatian Fund for Environmental Protection and Energy Efficiency supports renewable energy sources through various tenders, including those specifically intended for family houses (a relevant tender is expected to be published in April of 2019).

The main barriers for development of prosumers' activities:

- Monthly (instead of annual) calculation periods for energy use

The law imposes application of monthly calculation period which fails to recognize significant annual variation in the production of solar energy (more in the summer, less in the winter). This means that more significant surpluses will be created in the summer and more significant shortages in the winter. According to the current structure, the prosumer delivers electricity to the grid and the supplier decreases the prosumer's electricity bill based on the price of the electricity produced by prosumer at the end of each month for that calculation period. Croatian law makers should consider applying an annual and not a monthly calculation period but they failed to recognize this in the latest (Dec 2018) amendments to the Renewable Energy Act.

- Insufficient deployment of two-way metering devices

According to the applicable law, the prosumer must deliver electricity through the same metering device through which the electricity is taken-over from the grid. Therefore, it must secure a two-way metering device. It is assumed that end consumers in Croatia, especially households, usually have a one-way metering advice. Installation of the subject two-way metering device can be costly (for a household), especially having in mind that the investment in the procurement of the solar panels is already substantial. Also, apparently, the prices differ from one distribution system operator to another which increases non-transparency and insecurity with the future prosumers and potentially discourages them

from making the investment.

- Other barriers (financial and administrative)

Other barriers relate to a need for: - securing easier and more affordable financing for procurement of the technology, - simplifying procedures and – imposing less burden from an administrative point of view. Although the procedure for integrated solar power plants has already been simplified comparing to the procedures for development of big (non-integrated) renewable energy projects, further simplification would be desirable and possible (for example, by introducing online platforms).

The main barriers for development of REComs:

The main barrier for REComs is political non-recognition of their importance. It seems that the energy communities were better off before the last changes to the Renewable Energy.

Also, we do not see adjustments of other legal areas which would improve RECom's position – e.g., quotas for incentivizing production of renewable electricity (by way of premiums) for REComs only, recognizing areas/locations in the spatial plans solely for development of REComs renewable energy projects, lowering requirements the RECom's would have to meet in order to participate in auction procedures for the premiums (such as in relation to lowering the amount of guarantees and warranties which must be submitted), etc.

4.3 France

In France, legislation and regulations on self-consumption and collective self-consumption operations are quite recent. The relevant laws (now, integrated into the Energy Code) were adopted in 2015 and 2016. They are an important advancement, even though they are not perfect and more regulation, especially on REComs would be useful.

In 2015 France adopted the Law Nr 2015-992 pertaining to energy transition for green growth (Energy Transition Law), which included some provisions on prosumers. In 2016 the Ordinance 2016-1019 (Ordinance pertaining to electricity self-consumption (self-Consumption Ordinance)) regulating self-consumption was adopted. It is now included in chapter 4 of the title I, book III of the Energy Code. The decree 2017-676 implements the law through a more precise ruling act.

Table 12 France: RES Self-Consumer (Prosumer): Definitions; Right to generate energy; Storage; Restrictions and Selling of Surplus Energy

RES Self-Consumer (Prosumer)	
Definition	<p>Self-consumption is regulated by the chapter 4 of the title I, book III of the legislative part of the Energy Code, created by the Ordinance 2016-1019.</p> <p>There is no definition of a self-consumer but there is a definition of an individual self-consumption operation.</p> <p>Article 315-1 defines an individual self-consumption operation: <i>An individual self-consumption operation is when a producer, called self-producer, consumes by himself and on the same site the entire or part of electricity produced by his installation. Self-consumed electricity is either consumed immediately (instantly) or after a period of storage.</i></p>
Right to generate energy for self-consumption	<p>Yes, consumers can generate electricity for their own use, as defined in the <i>Law n° 2017-227 du 24 février 2017 (see also Annex 1)</i></p> <p>The national regulatory framework allows consuming self-generated electricity.</p> <p>Even before the adoption of the 2017 law, nothing prevented consumers from generating electricity for their own use. They just did not benefit from any support scheme and had to have two meters: one meter for consuming and the other meter for producing.</p>
Storage of energy	<p>Self-consumed energy can be supplied directly from the producer to a consumer instantaneously or after a period of storage (<u>article L315-1 code de l'énergie</u>)</p>
Restrictions on size of load allowed to input into the grid/size of self-production when injecting into the grid	<p>There are no legal restrictions on size of load. However, depending on the size of the project, self-consumers may benefit (or not) from certain supports schemes, grid tariffs or tax exemptions:</p> <ul style="list-style-type: none"> • the National Regulatory Authority has to define specific tariff for self-consumers under 100 kW • self-consuming operations under 1 MW are exempted from a RES levy (N.B.: a RES levy is a tax, a contribution to public energy services, which finances RES support schemes, energy poverty measures, energy ombudsman) • for production under 3kW, there are no balancing responsibilities, while, on the other hand, there is a right to dispatch energy to the grid for sale or for donation
Selling of self-generated energy and	<p>Self-consumers (prosumers) are allowed to sell the surplus</p>

remuneration for surplus energy put into the grid

of self-generated energy. However, small installations under 3 kWp can also “donate” it for free to the grid.

Table 13 France: Renewable Energy Communities; Definition; Legal Framework; REComs in the same building or multi-apartment block; Legal forms; Legislation; Generation, Consumption and Storage

Renewable Energy Communities (REComs)	
Definition	<p>There is no definition of an energy community.</p> <p>However, it is possible to use other legal structure for establishing a renewable energy production project.</p> <p>In addition, Article 315-2 of the Energy Code defines a collective self-consumption operation, while Article 314-27 of the Energy Code confirms the legality of opening the capital of RES production companies and SPVs to local authorities and natural persons living in the surrounding areas. It also allows these projects to benefit from certain exemptions on public offering rules.</p> <p>These provisions allow setting structures close to energy communities, but they do not match perfectly an idea of an energy community in terms of membership and activities.</p> <p>Art. 315-2 first paragraph of the Energy Code provides that operation of self-consumption is collective when electricity is provided between one or more producers and one or more final consumers who are tied (among themselves) within a legal structure of a legal person and whose extraction and injection points are situated after the same low-to-medium voltage transformer station.</p>
Legal framework for setting up REComs	See section on legislation enabling and providing specific rights to REComs.
RECom in the same building or multi-apartment block	<p>It is possible to create a renewable energy community in the same multi-apartment building or neighbourhood.</p> <p>Everyone can join or leave an energy community, and if it is a member, it can still choose its own supplier for the entire or surplus consumption.</p> <p>The limit is defined as a geographical and technical limit: it should stay below a certain granularity of the distribution network (i.e. low-tension grid).</p> <p>This level is one of the major limitations for the collective self-consumption operations.</p>

<p>Legal forms for REComs</p>	<p>Renewable energy communities may operate as collective self-consumption operations.</p> <p>Collective self-consumption operations may be carried out by entities having different legal forms. In particular, RECom may be established as a cooperative, a private company and even an association.</p> <p>A legal entity that is very adapted for energy communities is the <i>société coopérative d'intérêt collectif</i>. It is a low-profit organisation that may include all stakeholders involved in energy transition. An example of such a legal structure is an organisation called Enercoop. It is composed of consumers, producers, employees, partners, local authorities and founders. Every member has one vote, and 57,5% of the benefits must be reinvested into the project.</p>
<p>Legislation enabling and providing specific rights to REComs</p>	<p>The chapter 4 of the title I, book III of the legislative part of the Energy Code, created by the Ordinance 2016-1019 regulates self-consumption:</p> <ul style="list-style-type: none"> • Article 315-1 defines an individual self-consumption operation • Article 315-2 defines an collective self-consumption operation • Article 315-3 allows NRA to define specific grid tariffs for operations under 100 kW • Article 315-4 provides some responsibilities for the legal structure coordinating a collective self-consumption operation to give data to the DSO and suppliers for surplus consumption delivery and taxation duties. • Article 315-5 allows surplus of the operation to be dispatched to the grid for free (under a certain capacity) or sold • Article 315-6 requires DSO to provide contractual and technical framework for self-consumption in transparent and non-discriminatory conditions • Article 315-7 requests declaration of all self-consumption operations to the grid operator <p>The decree 2017-676 implements the law through a more precise ruling act.</p>
<p>Generation, consumption, storage and selling of energy by REComs (in particular, when rules are different from general rules applicable to all</p>	<p>Energy communities can generate and sell their green energy. However, they can only consume it if they are considered as collective self-consumption operation (CSO), or if they are a licensed supplier (example of an energy</p>

<p>self-consumers/prosumers)</p>	<p>community that is a licensed supplier is Enercoop).</p> <p>Provisions on storage applicable to individual self-consumers also apply to collective self-consumption operations (CSOs).</p>
<p>Sharing of electricity within the RECom</p>	<p>It is possible to share electricity within a collective self-consumption operation (CSO) as regulated by French Energy Code.</p>

Table 14 France: Individual prosumers and Renewables Energy Communities; Consumer rights; Energy Supplier

<p>Individual prosumers and Renewable Energy Communities (REComs)</p>	
<p>Consumers' rights</p>	<p>Self-consumers and members of (renewable) energy communities maintain their consumer rights.</p> <p>Self-consumption operators may always choose their supplier.</p>
<p>Classified as energy supplier?</p>	<p>Collective self-consumption operations (CSOs) are exempted from energy suppliers' responsibilities (Article 315-2).</p> <p>As such, they do not need any licence, nor specific technical and financial capacity, they are not balancing responsible nor need to implement any public service obligation.</p> <p>This explains why they are limited under a certain capacity threshold.</p> <p>Also, it makes suppliers obligations a bit more complicated in term of balancing and billing.</p> <p>A structure of collective self-consumption could decide to register as an energy supplier. In this case, it would be subject to certain (strict and demanding) requirements, such as balancing responsibility, technical and financial capacity.</p>

Table 15 France: Participation of Self-consumers and/or Renewables Energy Communities in Energy Markets; Dynamic Electricity Price Contracts; Permitting Requirements; Administrative Contact Points

Participation of Self-consumers and/or Renewable Energy Communities in Energy Markets

<p>Are RES self-consumers and REComs allowed to participate in energy markets?</p>	<p>It is possible for RES self-consumers and REComs to participate in energy markets but most of them will consider to be backed by an aggregator, except if they benefit from the feed-in tariff (when benefiting from (fixed) feed-in tariffs, a self-consumer or a RECom, would not be active on the market; the company buying their energy would be responsible and taking care of all market-related activities).</p>
<p>Dynamic electricity price contracts for self-consumers and/or REComs / time-of-use contracts for self-consumers and/or REComs</p>	<p>Dynamic electricity price contracts are available with certain suppliers. They are available for companies and natural person. They cannot be made available for a community.</p> <p>Other types of flexible contracts (time-of-use contracts) are available in France too. Most of suppliers offers day – night tariffs. Some suppliers start also offering more sophisticated tariffs such as cheaper prices at certain hours at night or during the weekend.</p>
<p>Permitting requirements on access to the grid</p>	<p>In general, producers and consumers of electricity must have an equal and non-discriminatory access to the grid (Energy Code, Art. L111-91 – L111-96). The Energy Regulatory Commission (CRE) controls the equal and non-discriminatory access to the grid. (GfK Belgium Consortium, 2017)</p>
<p>Single administrative contact points for permit granting process</p>	<p><i>Information not available (Not sure whether they exist. They may exist for bigger projects (for environmental and construction authorisations))</i></p>

Table 16 France: Incentives and Barriers

<p>Incentives and Barriers</p>	
<p>INCENTIVES (legislative, policy and support measures, incl. finance), especially for REComs</p>	<p><u>Individual self-consumption:</u> An investment premium and a feed-in tariff is given for projects under 36 kWp, a tender for bigger projects above 100 kWp and some grid tariffs and tax exemptions</p> <p><u>Collective self-consumption:</u> Specific grid tariffs for collective self-consumers (fixed by National Regulatory Authority (NRA) on a request by the Parliament; their purpose was to encourage a business model of collective self-consumption; in practice they have been fixed at such high levels that they are sometimes more expensive than the normal grid tariff; in the end they constitute a barrier). The Government declared to be willing to launch specific tenders for CSO that as of today do not benefit from any support scheme.</p>

	<p><u>Citizen and local participation to RES projects:</u> The citizen energy projects are supported by ADEME, the environmental agency. Also, there is a specific public fund EnerciT funding the preconstruction phases of the projects. Also, during the tenders, projects including local authorities and citizen (equity or debt crowdfunding, so even without local control) benefit from a premium in €/MWh.</p>
<p>BARRIERS (legislative, regulatory and political), especially for REComs</p>	<ul style="list-style-type: none"> • Insufficient legislative and policy framework for citizens’ participatory projects (e.g. citizens’ participatory energy aspects not integrated systematically into national energy and climate policies), • Lack of support framework and schemes for REComs (support schemes for RES not adapted to citizens’ participatory projects; no financial incentives/tax exemptions for REComs), • Tenders not sufficiently benefiting to energy communities, • Too strict rules on how local entities can collect money for local projects, • Specific grid tariffs for collective self-consumers (mentioned also above in incentives), which could be (and were meant to be) incentives but became a barrier (as fixed by NRA at such high levels that are often more expensive than normal grid tariffs), • No access to public data necessary for starting a RECom project.

4.4 Germany

German energy legislation is very complex. This complexity applies also to RES prosumers. The main law applicable to RES prosumers is the Renewable Energy Sources Act (the EEG). This law replaced the 1990 Energy Feed-in Act.

Through the years the EEG went through several amendments. While the earlier versions of the EEG had a strong focus on promotion of self-supply, the more recent amendments aim rather at addressing the cost allocation of Germany’s RES policy.

Table 17 Germany: RES Self-Consumer (Prosumer): Definitions; Right to generate energy; Storage; Restrictions and Selling of Surplus Energy

RES Self-Consumer (Prosumer)	
<p>Definition</p>	<p>There is no exact regulatory definition of ‘self-consumer’ or ‘prosumer’. However, there is a definition of ‘self-supply’ in the Renewable Energy Sources Act (EEG). Self-</p>

	<p>supply means the consumption of electricity which a natural or legal person consumes himself in the immediate vicinity of the electricity-generating installation if the electricity is not fed through a public grid system and this person operates the electricity-generating installation himself.</p> <p>Furthermore, there is a definition of 'self-producer' in the General Electricity Law. A self-producer is someone who generates electricity for self-consumption. There is a guideline from the Bundesnetzagentur (Federal Network Agency)²⁴ with the rights and opportunities for self-consumers.</p>
<p>Right to generate energy for self-consumption</p>	<p>There is no regulation that prohibits generation of electricity for self-consumption.</p> <p>The right to generate electricity for self-consumption may be deducted from the definitions of self-producer and self-supply.</p> <p>Grid operators have the obligation (with some exceptions in case it is not economically profitable or other contracts exist) to take all electricity from renewable energies (EEG, section 1(11)).</p> <p>Everyone wanting to consume self-generated electricity needs a permit. (There are two situations in which private persons do not need a permit for consumption of self-generated energy: when the nominal capacity of the plant is up to 2MW (if spatial connection to the plant is given) or when the plant is an emergency generator.)</p>
<p>Storage of energy</p>	<p>The storage of electricity is licit.</p> <p>However, the German regulatory definition of electricity storage is imprecise and changes within different contexts. Storage is referred to as:</p> <ul style="list-style-type: none"> • an energy producing plant (EEG 2017, Section 3(1); EnWG, Section 3(15))

²⁴ The Bundesnetzagentur's core task is to ensure compliance with the Telecommunications Act (TKG), Postal Act (PostG) and Energy Act (EnWG) and their respective ordinances. In this way, it guarantees the liberalisation and deregulation of the markets for telecommunications, post and energy via non-discriminatory network access and efficient system charges. As of 1 January 2006, the Bundesnetzagentur also assumed responsibility for rail regulation. (for more information see: https://www.bundesnetzagentur.de/EN/General/Bundesnetzagentur/About/Functions/functions_node.html)

- a final consumer (EEG 2017, Section 3(33); EnWG, Section 3(25)).

The Law on Electricity and Gas Supply only mentions 'storage' explicitly in the context of natural gas power plants (EnWG, Section 3(9)).

'Storage' under German energy law is a semantically ambivalent term, which does not fall into any of the three regulatory columns of the German energy market, i.e. production, transport and consumption.

Depending on whether storage concerns:

- own self-produced (renewable) energy or energy from an external source,
 - energy for self-consumption or feed-in,
- the economic implications (EEG-levy²⁵; grid fees) change.

Individual self-consumers

A person self-producing own RES electricity (< 10 kW installed capacity), storing it in its own storage installation (< 10 MWh per year) and consuming it directly, is not charged with extra fees because the energy does not pass through the public grid (EEG, Section 61a(4)). This applies to situations when RES-production, storage and consumption is done by the same person.

When the situation is different, e.g. the storage is not only used for self-consumption but for other services, the individual producers are allowed 500 kWh per kW of private storage without fees (EEG, Section 61l (1a)).

Individual and collective self-consumers

A person (individual and collective self-consumer) buying external RES electricity, storing it and then withdrawing it will have to pay all taxes and levies twice. Once when storing the electricity and once when withdrawing it or consuming it.

Collective self-consumers

Collective actors do not get advantages as described above in relation to individual self-consumers.

²⁵ This levy is paid with the electricity price. It finances the remunerations of Renewables Energies under the Renewable Energy Act

	<p>There are numerous public initiatives to incentivize the use of such storage devices:</p> <ul style="list-style-type: none"> • governmental cooperation with KfW (initiatives: “Energieeffizient Bauen” (energy-efficient construction), “Erneuerbare Energien - Speicher” (renewable energy – storage) and “Erneuerbare Energien – Standard” (renewable energy – standard), • funding by states and municipalities • initiatives of the Federal Government (especially, the Energy Storage Funding Initiative to promote energy storage systems (especially from renewable sources)) <p>N.B.: It is expected that the legislative framework regulating storage may change in the relatively near future (discussions ongoing); in consequence, extra charges on storage activities may be removed.</p>
<p>Restrictions on size of generation capacity allowed to input into the grid/size of self-production when injecting into the grid</p>	<p>There is no law that would limit the amount of renewable electricity produced or the size of the energy system.</p> <p>The grid operator must connect renewable energy plants immediately to the grid (a priority connection) (EEG 2017, section 8(1)) and favour energy from renewable sources and feed it in primarily (EEG, section 11(1)).</p> <p>However, the grid operator is allowed to regulate the amount of electricity put into the grid to guarantee stability.</p> <p>There are also different financial incentives effectively limiting in practice the amount of electricity/size of the systems.</p>
<p>Selling of self-generated energy and remuneration for surplus energy put into the grid</p>	<p>Grid operators have an obligation (with some exceptions in case it is not economically profitable or other contracts exist) to take all electricity from renewable energies (EEG, section 1(11)).</p> <p>Generally, the EEG stipulates that “Operators of installations in which only renewable energy sources or mine gas are used have an entitlement to claim from the grid system operator for the electricity generated in these installations [...]” (EEG 2017, Section 19(1)).</p> <p>Installation operators must allocate each installation to</p>

one of the following forms of sale:

1. The market premium,
2. The feed-in tariff,
3. The tenant electricity supplement,
4. Other direct selling.

Remuneration is dependent on the type and size of RES power plants as well as operator's position about the network point:

- Size and type of plant: PVs and wind plants with a generating capacity above 750 kW, as well as biogas plants with a generating capacity from 150 kW onward must participate in a public tender (the government announces a certain amount of fundable energy capacity and the lowest bid wins, determining the price of the market premium)²⁶. Smaller plants are exempt from that process but can choose to participate instead of receiving a guaranteed compensation via feed-in tariffs. In the case of small PV panels on (residential) buildings, prices in the market premium model lie between 8.58 and 12.23 cents/kWh as of October 2018. At the same time, fixed feed-in tariffs range from 10.28 cents (<100 kWp), to 11.50 cents (<40 kWp) and up to 11.83 cents (<10 kWp) per kWh.
- An operator's position about the network point (in the case of a tenant electricity model): in the tenant electricity model (Mieterstrom), several prosumers / final consumers are located behind the network point. For surplus electricity fed into the grid, they receive the same feed-in tariff remuneration. For their self-consumed energy, they receive an additional 'tenant-electricity surcharge' (EEG 2017, Sections 19(3) and 21(3)). In return, they are obliged to pay 40% of the EEG-apportionments intended for traditional electricity consumers (EEG 2017, Section 61b(1)).

²⁶ More information about the market premium is available at: <https://www.next-kraftwerke.de/wissen/direktvermarktung/marktpraemie>

Table 18 Germany: Renewable Energy Communities; Definition; Legal Framework; REComs in the same building or multi-apartment block; Legal forms; Legislation; Generation, Consumption and Storage

Renewable Energy Communities (REComs)	
Definition	<p>The German term for “energy community” is “Bürgerenergie”. EEG, Section 3 (15), contains a legal definition of what is considered “Bürgerenergiegesellschaft” – with certain privileges for community wind under the auction system. Besides this small portion of the overall community energy sector, there is no clear unanimously agreed definition of what constitutes an energy community.</p> <p>Usually, “Bürgerenergie” means financial participation of local citizens via equity in renewable energy installations. However, there are different regulations and/or support schemes in different federal states.</p> <p>The legal definition of “Bürgerenergie” is: “Citizens’ energy company” shall mean any company:</p> <ol style="list-style-type: none"> a) which consists of at least ten natural persons who are members eligible to vote or shareholders eligible to vote, and b) in which at least 51 percent of the voting rights are held by natural persons whose main residence has been registered (pursuant to Section 21 or Section 22 of the Federal Registration Act) for at least one year prior to submission of the bid in the urban or rural district in which the onshore wind energy installation is to be erected, and c) in which no member or shareholder of the undertaking holds more than 10 percent of the voting rights of the undertaking, whereby in the case of an association of several legal persons or unincorporated firms to form an undertaking it is sufficient if each of the members of the undertaking fulfils certain preconditions.
Legal framework for setting up REComs	See below in the point ‘Legislation enabling and providing specific rights to REComs’
REC in the same building or multi-apartment block	It is possible to share electricity in the same multi-apartment building or neighbourhood (‘Mieter-strom’). The ‘Mieterstrom’ is a system of collective consumption (every person in the building decides on their own whether he wants to take part in the self-consumption or

	<p>not; there is one per-son (not necessarily living in the building) who takes care of the technical and administrative aspects of the cooperation).</p>
<p>Legal forms for REComs</p>	<p>Legal structures differ. Most common are: limited liability partnerships (limited partnership with limited liability company as general partner; GmbH & Co. KG), especially for large-scale projects, e.g. wind power plants, usually as special purpose vehicles for single wind or solar parks; registered cooperatives (eingetragene Genossenschaften, eGs, under Coop Societies Act/GenG), especially for medium-sized PV and district heating/bioenergy villages, but more and more looking into other business models; <u>civil law associations</u> (Gesellschaften bürgerlichen Rechts, GbRs), especially for small PV, but nowadays not that common anymore, but replaced by coops.</p>
<p>Legislation enabling and providing specific rights to REComs</p>	<ul style="list-style-type: none"> • Energiewirtschaftsgesetz [EnWG]: <i>Law on Electricity and Gas Supply</i> • Erneuerbare-Energien-Gesetz [EEG 2017]: <i>Law for the expansion of renewable energies</i> • Stromsteuergesetz [StromStG]: <i>Electricity Tax Act</i> • Energiedienstleistungsgesetz [EDL-G]: <i>Law on energy services and other energy efficiency measures</i> • Energiesteuergesetz [EnergieStG]: <i>Energy Tax Act</i> • Gesetz betreffend die Erwerbs- und Wirtschaftsgenossenschaften [GenG]: <i>Law on the labor and economic cooperatives</i> • Kraft-Wärme-Kopplungsgesetz [KWKG]: <i>Law for the preservation, modernization and expansion of combined heat and power</i> • Energieeinsparverordnung [EnEV]: <i>Ordinance on energy-saving thermal insulation and energy-saving plant technology in buildings</i> (N.B.: it is being discussed and may be amended in the near future) • Stromnetzzugangsverordnung [StromNZV]: <i>regulation on electricity feed-in to and consumption from electricity supply grids</i> • Leitfaden zur Eigenversorgung: <i>Guideline for self-supply</i>
<p>Generation, consumption, storage and selling of energy by REComs (in</p>	<p>REComs can be registered as self-producers of RES.</p>

<p>particular, when rules are different from general rules applicable to all self-consumers/prosumers)</p>	<p>REComs can “sell” their energy only if they are registered as a supplier.</p> <p>Conditions concerning generation, consumption and storage for REComs can be described as falling in-between conditions applicable to individual self-consumers and energy suppliers.</p> <p>Very few exemptions from general rules apply to energy communities. Example of such exemption is the “Mieterstrom”.</p> <p>In a majority of cases, energy communities apply the same regulations as other energy suppliers. From the economic point of view this means that in practice, they must reach a certain scale to make the business profitable and, as a consequence, decide to participate in energy markets.</p> <p>This situation is very different from the situation of individual self-consumers to whom many exemptions apply under the German energy law.</p>
<p>Sharing of electricity within the RECom</p>	<p>It is possible for energy communities to share self-produced renewable energy within the community.</p> <p>An example of such a system is ‘Mieterstrom’, a system of collective self-consumption in the same multi-apartment building or neighbourhood, where a building owner may produce (on the building’s roof) electricity from solar PVs and sell it to its tenants located in the same building.</p> <p>In addition, it is also possible for energy communities to own a local grid and supply directly to their neighbours.</p> <p>However, in all cases other than ‘Mieterstrom’ the same rules as for energy suppliers are applicable to energy communities.</p>

Table 19 Germany: Individual prosumers and Renewables Energy Communities; Consumer rights; Energy Supplier

<p>Individual prosumers and Renewable Energy Communities (REComs)</p>	
<p>Consumers’ rights</p>	<p>The Renewable Energy Sources Act (EEG) does not address the issue of consumer rights.</p>

	<p>The EEG only contains provisions on prosumer rights (i.e. there has to be a technical reason for someone not being allowed to have a PV plant etc.)</p> <p>We are not aware of prosumers being protected by any other laws.</p>
<p>Classified as energy supplier?</p>	<p>In order to be able to supply self-generated electricity and before starting such an activity, it is necessary to be registered as an energy supplier and obtain a supplier permit.</p> <p>In the case of private persons two exceptions exist (when it is possible to supply self-generated electricity without being registered as an energy supplier): 1. when the capacity of the plant is up to 2MW and supplied to a power supply company; 2. when the capacity of the plant is up to 2MW, the generated electricity complies with the judicial requirements for electricity from renewable energies and the electricity is not supplied/distributed via the public grid (e.g. local grid with neighbours) ²⁷</p> <p>A plant operator (a prosumer or an energy community is first of all a plant operator) is by law defined as a person responsible for the costs and financial risks of the energy plant (including thus leaseholder of plants)²⁸</p>

Table 20 Germany: Participation of Self-consumers and/or Renewables Energy Communities; in Energy Markets; Dynamic Electricity Price Contracts; Permitting Requirements; Administrative Contact Points

Participation of Self-consumers and/or Renewable Energy Communities in Energy Markets

²⁷ For detailed information on supply of self-generated electricity see: http://www.zoll.de/DE/Privatpersonen/Alkohol-Kaffee-Kraftstoffe-Strom-im-Haushalt/Erzeugen-und-Beziehen-von-Strom/Erzeugen-Strom/erzeugen-strom_node.html

²⁸ More information on self-generation can be found at: https://www.vea.de/fileadmin/user_upload/06_Publikationen/Faktenpapier_DIHK_VEA2014.pdf

<p>Are RES self-consumers and REComs allowed to participate in energy markets?</p>	<p>Both RES self-consumers and REComs can participate in the energy market directly and through aggregators. EEG allows all installation operators to participate directly in the market. In this case they cannot claim the remuneration for RE from the grid operator (EEG, Section 21a).</p> <p>Since each market has its own rules, it is difficult to answer this question generally. As a rule of thumb, energy communities usually participate in these markets via "aggregators" (more precisely: in many cases "direct marketers") and/or service companies/suppliers (partly also active as "direct marketers"/"Direktvermarkter") that sell the electricity directly under their name or as white label product under the name of the energy community.</p> <p>Particular "energy markets" are regulated by regulations for direct marketing ("Direktvermarktung"), electricity exchange (EPEX/EEX), and different ancillary services, especially balancing energy.</p>
<p>Dynamic electricity price contracts for self-consumers and/or REComs / time-of-use contracts for self-consumers and/or REComs</p>	<p>There is no restriction in the law that would forbid dynamic electricity price contracts.</p> <p>Electricity contracts offer several models for private persons and companies. Three types of contracts used most frequently are: time-of-use, critical peak pricing and real time pricing.</p> <p>The EnWG, Section 40(5), requires that energy supplier offers, if economically and technically feasible, a variable/dynamic price contract.</p> <p>In addition, heat pumps have contracts with interruptions. Since 2012 these interruption times are required and regulated by law (StromNZV, Section 12(2)).</p>
<p>Permitting requirements on access to the grid</p>	<p>The permitting requirements are regulated by the EEG and might as well depend on the regional grid operator and local authority (if regulated by a contract individually). The main requirements are as follows:</p> <ul style="list-style-type: none"> • Installation operators must comply with formal requirements (submit data about the energy generated to the Federal Network Agency;

	<p>hand in an application form to the grid operator; transmit data to the grid operator).</p> <ul style="list-style-type: none"> • Technical requirements must be complied with (e.g. all installations have to be equipped with a technical device that measures the amount of feed-in at all times; in some systems there are special requirements concerning the amount fed in at a connection point). • Costs of the connection point have to be paid by the installation operator. Additional costs provoked by expansion or optimization of the grid need to be covered by the grid operator.
<p>Single administrative contact points for permit granting process</p>	<p>There are no single administrative contact points for permit granting process.</p>

Table 21 Germany: Incentives and Barriers

<p style="text-align: center;">Incentives and Barriers</p>	
<p>INCENTIVES (legislative, policy and support measures, incl. finance), especially for REComs</p>	<ul style="list-style-type: none"> • Existence of the specific legislative framework (EEG), which, i.e.: <ul style="list-style-type: none"> ○ ensures that renewable energy gets priority feed-in and installations operators from renewable energies receive financial incentives (market premium, feed-in compensation); ○ sets rules concerning participation of energy cooperatives in auctions. • Advantages for energy communities in the auctioning process: <p>The 'Bürgerenergiegesellschaften' may participate under special profitable circumstances in wind tenders²⁹. The project size is defined by a maximum of six windmills with maximum 18 MW. The local authority/municipality has the right to invest in the project (up to 10%). Until the beginning of 2018, energy communities were able to participate in the process of tendering before all other tenderers (before</p>

²⁹ For more information on 'Bürgerenergiegesellschaften' see: <https://www.erneuerbare-energien.de/EE/Navigation/DE/Recht-Politik/EEG-Ausschreibungen/Akteursvielfalt-Buergerenergie/akteursvielfalt-buergerenergie.html>

BARRIERS (legislative, regulatory and political), especially for REComs

the 'immissionsschutzrechtlichen Genehmigung').

In addition, energy communities receive the highest amount accepted if they win the tender (it does not have to be their own bid; i.e. uniform pricing instead of pay-as-bid which is the rule for other participants).

- Funding and support initiatives by the Federal Government to promote renewable energies.
- Support schemes in several federal states (a support program on national level is discussed): Rentenbank has a support program for "Bürger- und Bauernwindparks", i.e. wind parks of citizens and farmers.
- Remuneration/Feed-in tariff for electricity from RE (EEG, Section (19)).
- Exemption from EEG-levy (EEG, Section 61a).
- Tax exemptions for electricity from RES (StromStG, Sections 9 and 9b; EnergieStG, Section 47a).
- Public funding for bioenergy regions between 2009 and 2015 from the Federal Ministry of Food and Agriculture.
- Public funding from KfW for different RE investments.
- Support and Information via public regional energy agencies.
- The numerous changes in the EEG 2017 law made it one of the most complicated laws.³⁰
- More than one law applicable, leading to complex legislative structure, and extra costs.
- Profits of renewable energies came (in the last years) mainly from funding guaranteed through the EEG. The adoption of the law in 2017 led to a missing feed-in compensation that was replaced by variable funding through auctions. This means for energy cooperatives a less stable environment and pressure to provide the cheapest offer.
- Privileges exist mainly for single households. Compared with single unit solutions, communities are in a clear disadvantage because all general rules and regulations apply.
- Politically, it is a highly contested field.

³⁰ Energy cooperatives and challenges they face are part of a public debate and have been discussed in the press (<https://www.wir-leben-genossenschaft.de/de/Energiegenossenschaften-und-neue-Geschäftsmodelle-5632.htm>)



Currently, legal initiatives rather look into options how municipalities and/or districts can profit financially from installations rather than "Bürgerenergie" in a narrower sense.

4.5 United Kingdom/Great Britain

This study concentrated on Great Britain (England, Wales and Scotland). Northern Ireland, which, together with Great Britain constitutes the United Kingdom, has different trading arrangements and subsidy regimes. It is not to be described here except in cases when it is regulated by the same laws as Great Britain.

Even though in Great Britain, the energy sector is mainly regulated by the Central Government, some elements of energy policy are within the competence of the governments of Scotland and Wales. In addition, the Scottish government has also set in place 'soft' policy measures to demonstrate stronger political commitment to renewables.

The main legislative framework is set out by the Electricity Act 1989 (as amended and supplemented), which establishes a licensing regime and sets out the statutory duties of the regulator, the Gas and Electricity Markets Authority (GEMA), which operates through the Office of Gas and Electricity Markets (Ofgem), and the Secretary of State for Energy and Climate Change (Secretary of State).

Policy instruments that influence microgeneration are many and varied. They include both laws and strategies.

Table 22 United Kingdom/Great Britain: RES Self-Consumer (Prosumer): Definitions; Right to generate energy; Storage; Restrictions and Selling of Surplus Energy

RES Self-Consumer (Prosumer)	
Definition	There is no legal definition of RES Self-Consumer or Prosumer in Great Britain.
Right to generate energy for self-consumption	<p>There is no specific consumer's right to generate energy for self-consumption.</p> <p>On the other hand, there is some specific legislation which is applicable to prosumers, i.e. legislation on FIT (feed-in-tariff) scheme and the Microgeneration Certification Scheme (MCS).</p> <p>The law sets also rules on generation, transmission, distribution and supply of electricity as well as interconnection and metering services.</p> <p>The UK energy regulator, Ofgem, provides licences to those wanting to generate, distribute or supply electricity in the UK. Under Section 4(1) of the Electricity Act 1989, it is</p>

	<p>unlawful to carry out these activities without a licence, unless one is exempted from doing so.</p> <p>Exemptions for a generation activity can be individual or be 'class exemptions' applying automatically to any legal entity falling within a relevant definition.</p> <p>Class generation licence exemptions are set out in the Electricity (Class Exemptions from the Requirement for a License) Order 2001. Small generators ('Class A') with output of maximum 10MW to the GB transmission system and all distribution systems, or output of 50 MW if the 'generating station' has a 'declared net capacity'³¹ of less than 100MW, are exempted from a licence to generate electricity.³²</p> <p>According to Section 5(1)(a) of the Electricity Act, the Secretary of State may grant exemptions for single cases to individuals or groups of individuals.</p> <p>If a class exemption does not apply and an individual license is not granted, a full generation license is needed. This implies compliance with Balancing and Settlement Code.</p> <p>It can be assumed that a full generation licence may only rarely be needed for prosumer initiatives. Most prosumer initiatives would not exceed the 10 MW limit.</p> <p>To conclude: anyone has a right to operate generation up to 10 MW without a license.</p>
<p>Storage of energy</p>	<p>There is no definition of electricity storage in the legislation, despite consultations to do so³³.</p>
<p>Restrictions on size of generation capacity allowed to input into the grid/size of self-production when injecting into the grid</p>	<p>Distribution Network Operator (DNO) takes a view on the network constraints in what they will allow to connect.</p> <p>Legal restrictions on the size of load are related to the subsidies, in particular the feed-in-tariff (FIT) scheme. The maximum allowed net capacity of installations eligible under the FIT is 5MW of 'declared net capacity'. Declared net capacity of these installations can be maximum 50 kW.</p>

³¹ 'Declared net capacity': 'The declared net capacity of a generating station which is driven by any means other than water, wind or solar power is the highest generation of electricity (at the main alternator terminals) which can be maintained indefinitely without causing damage to the plant less so much of that capacity as is consumed by the plant' (the Electricity Order)

³² N.B.: Exceptions are also set regarding licenses to distribute energy and supply of electricity. In case of supply activity, distribution networks under 2.5 MW capacity do not need a license.

³³ Consultation by Ofgem 'Clarifying the regulatory framework for electricity storage: licensing', consultation carried out: 29 September - 27 November 2017 (<https://www.ofgem.gov.uk/ofgem-publications/122279>)

Selling of self-generated energy and remuneration for surplus energy put into the grid

However, the FIT system will end in April 2019.

Revenues that self-consumers may obtain from the electricity generation are these under the FIT scheme. They are available for small-scale renewable electricity generation. Details of the scheme are set out in 'The Feed-in Tariffs (Specified Maximum Capacity and Functions) Order 2010'³⁴ and 'The Feed-in Tariffs Order 2012 (as amended)³⁵.

Renewable energy sources eligible under the FIT scheme are anaerobic digestion, hydro generating station, solar photovoltaic and wind.

The Gas and Electricity Markets Authority maintains the central FIT register. A payment is made for the electricity generated ('generation payment') and for electricity exported into the grid ('export payment'). The payments are guaranteed for up to 20 years (N.B.: since 2015 there is a cap on the number of installations that can benefit from the FIT) and meant to help to subsidise the cost of the renewable energy installations. The FIT scheme started in 2010, and will end on 1 April 2019.

According to the 2010 Order, Art.25(3): *«"net metered export payment" means a payment made to a FIT generator or nominated recipient by a FIT licensee in respect of the export of electricity from an accredited FIT installation measured by meter, less the value of that export, that value having been determined by the Secretary of State under article 28».*

Article 28 of the 2010 Order states that: *«(1) The Secretary of State must determine in respect of a FIT year (a) the value per kilowatt hour of electricity for the purpose of net metered exports; (b) the value of deemed exports for the purpose of net deemed export payments.»*

³⁴ 'The Feed-in Tariffs (Specified Maximum Capacity and Functions)' Order 2010 of 8th March 2010; 2010 No. 678 Electricity (http://www.fitariffs.co.uk/library/regulation/uksi_20100678_en1.pdf)

³⁵ 'The Feed-in Tariffs Order 2012' of 6th November; 2012 No. 2782 Electricity (<http://www.legislation.gov.uk/uksi/2012/2782/made/data.pdf>)

Table 23 United Kingdom/Great Britain: Renewable Energy Communities; Definition; Legal Framework; REComs in the same building or multi-apartment block; Legal forms; Legislation; Generation, Consumption and Storage

Renewable Energy Communities (REComs)	
Definition	<p>There is no legal definition of Renewable Energy Communities.</p> <p>Yet, the government has provided a definition in policy document entitled the 'Guidance Community Energy - A guide aimed at local groups who are interested in setting up a community energy project' (as amended)³⁶. Community Energy is defined there as a '<i>collective action to reduce, purchase, manage and generate energy</i>. It is also specified there that '<i>Community energy projects have an emphasis on local management, local leadership and control and the local community benefiting collectively from the outcomes.</i>'</p> <p>Furthermore, the 'Feed-in Tariffs Order 2015' (amending the 2012 version) includes a definition of 'community organisation'. Section 11(6) of the 'Feed-in Tariffs Order 2015' states that "community organisation" means:</p> <ul style="list-style-type: none"> (a) any of the following which has 50 or fewer employees <ul style="list-style-type: none"> (i) a charity; (ii) a community benefit or co-operative society; or (iii) a community interest company; or (b) a subsidiary (as defined in section 1159 of the Companies Act 2006(b)), wholly owned by a charity, where the subsidiary has 50 or fewer employees and the parent charity has 50 or fewer employees.
Legal framework for setting up REComs	<p>There is no separate and specific legal framework for setting up REComs. However, these kinds of initiatives are bound by the legislation that covers the type of legal structure they adopt (mainly, cooperative or not for profit legal structure).</p> <p>Legal and policy instruments that regulate the renewable sources of energy and influence, directly or indirectly, small</p>

³⁶ A guide aimed at local groups who are interested in setting up a community energy project is available online (<https://www.gov.uk/guidance/community-energy>).

	<p>RES energy generation, are varied and include in particular:</p> <ul style="list-style-type: none"> • Promotion of the Use of Energy from Renewable Sources Regulations 2011, • The Climate Change Act 2008, • The Renewables Obligation (RO) 2002, • The Energy Act 2008, • The 2011 Energy Act, • The 2013 Energy Act; • Part L of the Building Regulations, • Climate Change and Sustainable Energy Act 2006 (which amended the Electricity Act 1989, the Town and Country Planning Act 1990, the Gas Act 1986 and the Electricity Act 1989), • The Carbon Plan, • The Microgeneration Strategy of 2011.
<p>RECom in the same building or multi-apartment block</p>	<p>There are no barriers for individuals living in the same multi-apartment building or in the same neighbourhood to establish and run a separate energy community.</p> <p>Non-profit organisations such as Repowering London facilitate such kinds of projects. However, these are pilot projects rolled out within the framework of the energy regulator’s regulatory sandbox, which aim to test new energy innovations without being subject to all of the regulatory requirements.</p> <p>Subject to the successful sandboxing, the organisation can apply to OFGEM for a ‘derogation’ to become exempt from certain standards and regulations.³⁷</p>
<p>Legal forms for REComs</p>	<p>Energy communities may have different legal forms, including:</p> <ul style="list-style-type: none"> • Community Interest Companies (CICs), • Community Benefit Societies (BenComs), • Co-operative Societies (Co-ops), • Limited Liability Partnerships (LLPs), • Ltd Company and • Charities. <p>Both natural and legal persons may be members of Co-ops/BenComs (Section 32 CCBSA 2014) as well as LLPs (Section 2 Limited Liability Partnerships Act 2000) Schneiders, A. and Shipworth, D. (2018).</p>

³⁷Information on derogations from standards is available on-line (through the website of Ofgem): <https://www.ofgem.gov.uk/licences-codes-and-standards/standards/technical-standards/derogations-standards>

	Some of these legal forms are recognized in the Feed-in Tariffs Order 2012 (Section 11(6)).
Legislation enabling and providing specific rights to REComs	There is no legislation enabling and providing specific rights to REComs.
Generation, consumption, storage and selling of energy by REComs (in particular, when rules are different from general rules applicable to all self-consumers/prosumers)	<p>As there is no specific legislation regulating REComs, the rules that apply to them are the same way as rules applicable to other actors.</p> <p>As some of the legal forms that REComs may have, are recognised in the Feed-in Tariffs Order 2012 (Section 11(6))³⁸, REComs can also benefit from this scheme (when they comply with other requirement allowing to access the FIT scheme).</p>
Sharing of electricity within the RECom	<p>Members of REComs structures are allowed to share electricity among themselves, provided that this is 'behind the meter'.</p> <p>On the other hand, peer-to-peer energy trading is currently not allowed. In spite of that, some pilot projects are allowed to be exempt from this rule (the process is a sandbox from OFGEM and then a derogation). An example of such an exception is a project trialling a local peer-to-peer blockchain-enabled energy trading platform in London, which allows trading excess energy with neighbours. (Stocker, 2017)</p>

Table 24 United Kingdom/Great Britain: Individual prosumers and Renewables Energy Communities; Consumer rights; Energy Supplier

Individual prosumers and Renewable Energy Communities (REComs)	
Consumers' rights	Consumers producing their own energy benefiting from the feed-in tariff scheme retain their rights as consumers. Under the Consumer Rights Act 2015, a consumer is defined as "an individual acting for purposes that are wholly or mainly outside that individual's trade, business, craft or profession" (Stocker, 2017).

³⁸ 'The Feed-in Tariffs Order 2012 No. 2782, Electricity (made: 6th November 2012; laid before Parliament: 8th November 2012; Coming into force: 1st December 2012): <http://www.legislation.gov.uk/uksi/2012/2782/made/data.pdf>

	<p>There is not specific legislation on consumer rights in relation to REComs. However, they will be covered by the same consumer protection rights as apply to its legal form.</p>
<p>Classified as energy supplier?</p>	<p>Individuals or groups can supply energy, if they obtain a special licence.</p> <p>Generation, distribution or supply licences are delivered by the energy regulator, Ofgem.</p> <p>However, small actors supplying not more than 5MW, 'of which not more than 2.5 MW is supplied to domestic consumers', are exempted from an obligation to obtain an electricity supply licence.</p> <p>Exceptions are also set regarding licences to generate and distribute energy.</p> <p>Many of the self-consumers and RECs are small ('small suppliers') and will not need a licence.</p>

Table 25 United Kingdom/Great Britain: Participation of Self-consumers and/or Renewables Energy Communities in Energy Markets; Dynamic Electricity Price Contracts; Permitting Requirements; Administrative Contact Points

<p>Participation of Self-consumers and/or Renewable Energy Communities in Energy Markets</p>	
<p>Are RES self-consumers and REComs allowed to participate in energy markets?</p>	<p>RECom schemes are able to access FIT scheme for their self-generated power of up to 5MW capacity.</p> <p>Above this threshold, in order to retail power, generators must either participate in the national BETTA (British Electricity Trading and Transmission Arrangement) market (this requires significant overheads, often too large for community and small commercial schemes), or sell their output via a third party which is a BETTA participant (via power purchase agreements) (GfK Belgium consortium, 2017).</p> <p>Therefore, in practice there is no direct access to the wholesale market for self-consumers and renewable energy communities.</p> <p>Aggregators can participate in the balancing and settlement (i.e. wholesale) market if they are registered suppliers for the sites they are aggregating.³⁹</p>

³⁹ More on this subject at: <https://utilityweek.co.uk/balancing-mechanism-opens-small-generators-aggregators/>

	<p>A modification to the British Grid Code is foreseen. This modification would allow the aggregation of BMU (balancing mechanism unit) data at GSP⁴⁰ group⁴¹ level (distinct electrical system). GSP group level refers to all GSPs within a distribution network licence area⁴². The same changes would be made to the Balancing and Settlement Code (BSC), with the creation of a new party called the 'Virtual Lead Party', which would not need to hold a supply licence to participate in the balancing and settlement mechanism.</p> <p>These changes are proposed to take place in 2019.</p>
<p>Dynamic electricity price contracts for self-consumers and/or REComs / time-of-use contracts for self-consumers and/or REComs</p>	<p>All energy consumers, including those producing their own energy and benefiting from the FIT scheme, can also benefit from variable electricity price contracts.</p> <p>Two types of tariff schemes are largely available in the UK: 'Economy 7' and 'Economy 10'.</p> <p>'Economy 7' is a type of electricity tariff that has a different price per kWh based on time of use. It is used with an economy 7 meter. It is usually based around day and night-time usage, with the price/kWh being cheaper at night.</p> <p>'Economy 10' (also known as 'Heatwise') is a system very similar to 'Economy 7', except that it provides 10 hours of cheaper electricity rather than 7. Also, 3 of these hours are in the afternoon, and 7 are overnight.</p> <p>There is no particular information on the availability of variable tariffs for community groups.</p> <p>Information on tariffs ('Economy 7' and 'Economy 10') is available online at consumer information websites.⁴³</p>
<p>Permitting requirements on access to the grid</p>	<p>Permitting requirements for REComs are the same as for individual self-consumers.</p> <p>The processes governing connection to and operation of electricity generators varies depending on which country</p>

⁴⁰ Grid Supply Point(s)

⁴¹ GSP Group means a distinct electrical system, consisting of: (i) the Distribution System(s) which are connected to the Transmission System at (and only at) Grid Supply Point(s) which fall within one Group of GSPs, and (ii) any Distribution System which: (1) is connected to a Distribution System in paragraph (i), or to any other Distribution System under this paragraph (ii), (2) is not connected to the Transmission System at any Grid Supply Point and the total supply into which is determined by metering for each half hour (<https://www.elexon.co.uk/glossary/gsp-group/>)

⁴² 'Balancing and Settlement Code (BSC) P344: Project TERRE implementation into GB market arrangements P344' (https://www.ofgem.gov.uk/system/files/docs/2018/08/p344_bsc_terre_0.pdf)

⁴³ Guidance on tariffs is available on-line at: <https://www.uswitch.com/gas-electricity/guides/economy-7/#step3>

	<p>the connection is located in (England, Scotland, Wales).</p> <p>In order to connect to the grid, it is necessary to comply with distribution grid codes. These codes are available at the energy networks association website. They protect the local grid from connections that are too large for it to manage without foresight on whether a grid reinforcement is needed or whether a standard connection will do.</p> <p>The codes also contain engineering specifications to prevent harmonic and other issues from damaging the network.⁴⁴</p>
<p>Single administrative contact points for permit granting process</p>	<p>The UK energy regulator, Ofgem, is the responsible administrative contact point</p>

Table 26 United Kingdom/Great Britain: Incentives and Barriers

<p style="text-align: center;">Incentives and Barriers</p>	
<p>INCENTIVES (legislative, policy and support measures, incl. finance), especially for REComs</p>	<ul style="list-style-type: none"> • The FIT is the main incentive for renewable self-consumers in Great Britain (it ends in April 2019 though – see below in ‘Barriers’ on consequences of this decision). • Community energy groups also benefit from less strict rules as regards to the energy efficiency of buildings on/at which renewable energy installations are installed, i.e. the EPC certificate⁴⁵. • Furthermore, RECs benefit from a six-month extension in the ROO-FIT⁴⁶ preliminary accreditation validity period.
<p>BARRIERS (legislative, regulatory and political), especially for REComs</p>	<p>A major barrier is the lack of policy support in the form of subsidies and cheap access to capital (the banking sector is very big and ignores small and socially beneficial types of investment). There is little financial aid for energy communities.</p> <p>Since 2015, tax incentives such as the Enterprise Investment Scheme (EIS), Seed Enterprise Investment Scheme (SEIS) and</p>

⁴⁴ Six Distributed Generation Connection Guides and their corresponding summary guides are available at: <http://www.energynetworks.org/electricity/engineering/distributed-generation/dg-connection-guides.html>

⁴⁵ ‘Feed-in Tariffs: Guidance for community energy and school installations’ (Version 3), Ofgem e-serve, Publication date: 18 April 2016 (<https://www.ofgem.gov.uk/ofgem-publications/100090>)

⁴⁶ Information on ROO-FIT is available at: <https://www.ofgem.gov.uk/environmental-programmes/fit/applicants/roo-fit-large-installations>, <https://www.ofgem.gov.uk/environmental-programmes/fit/applicants/benefits-communities-and-schools>

Social Investment Tax Relief (SITR) are no longer available for community energy schemes⁴⁷. The Urban Community Energy Fund (UCEF) was also scrapped in 2015.⁴⁸

As to the FIT, the 'tariff guarantee' previously granted to community organisations planning to commission non-domestic PC installations not exceeding 50 kW is no longer available since 1 October 2015. The FIT rate has consistently been decreased and stands now at 4 pence per kWh generated. This decrease has made the installation of renewable energy technologies less attractive. Furthermore, the FIT scheme will altogether end in April 2019. The ending of the FIT scheme has been staunchly criticised by renewable energy groups, stating that renewable self-consumers will now have to essentially provide their left-over self-generated energy for free to the grid.⁴⁹

The end of the FIT scheme means that there is no subsidy on generation and there is no automatic market for the electricity that prosumers feed into the grid. This removes the obligation on suppliers to buy the energy prosumers produce at a fixed price.

Another big barrier is the lack of knowledge and skills of the volunteers who have been used to a subsidy environment and are now unable to make these models work on commercial terms (this is especially true of new and more complex business models).

4.6 Italy

The Italian Constitution provides that the competences on the production, transmission and distribution of energy are shared between the state and the regions. This is a primary reason of why the regulatory framework concerning the renewable sources of energy is quite fragmented.

Italian law does not recognise self-consumers, prosumers and energy communities. However, it provides for interesting forms close to these. In particular, it provides a definition of 'self-producer' and

⁴⁷ Community Energy State of the Sector 2018

(https://communityenergyengland.org/files/document/169/1530262460_CEE_StateoftheSectorReportv.1.51.pdf)

⁴⁸ Idem.

⁴⁹ More information on the UK FIT scheme is available at: <https://www.ofgem.gov.uk/environmental-programmes/fit/applicants/benefits-communities-and-schools>, <https://www.ukcec.org/what-next-community-energy-post-fit-world>, <https://www.power-technology.com/features/end-feed-tariffs-uk-mean-small-scale-renewables/>

allows to self-generate and self-consume energy. It also sets two types of simple production and consumption systems which have features of self-consumption and energy communities, namely 'Utility Efficient System' (Sistema Efficiente di Utenza) as, for instance, historic cooperatives in the mountain regions.

The Italian law is expected to be amended in order to provide better regulation of self-consumption and energy communities. Discussions on possible legislative changes started even before the adoption of relevant EU directives.

Table 27 Italy: RES Self-Consumer (Prosumer): Definitions; Right to generate energy; Storage; Restrictions and Selling of Surplus Energy

RES Self-Consumer (Prosumer)	
Definition	<p>There is a definition of 'self-producer':</p> <p><i>'the natural or legal person who produces electricity and uses it for no less than 70% a year for their own use or for the use of the company subsidiaries, as well as for use of members of electricity production and distribution cooperatives referred to in Article 4, number 8 of law 6 December 1962, n. 1643, for members of the consortia formed for the production of electricity from renewable energy sources and for the supply authorized uses in industrial sites prior to the effective date of this decree'</i> (Art. 2 paragraph 2 of Decree 79/99)</p> <p>There is no specific definition of a renewable "self-consumer".</p>
Right to generate energy for self-consumption	<p>Self-generation and self-consumption of energy are possible under Italian law (each citizen and enterprise can produce energy to meet part of its needs, and can also sell the surplus energy to receive income).</p>
Storage of energy	<p>It is possible for self-consumers to store electricity, even though the relevant regulatory frameworks are only technical. Legislative framework around the storage of electricity is not very well developed.</p>
Restrictions on size of generation capacity allowed to input into the grid/size of self-production when injecting into the grid	<p>There are no restrictions on the size of renewable energy systems installed for self-generation and no limits on the amount of electricity that can be put into the grid.</p>
Selling of self-generated energy and remuneration for surplus energy put into the grid	<p>It is possible for self-consumers to sell electricity to the grid.</p> <p>Different options of how electricity may be sold to the grid:</p> <ul style="list-style-type: none"> • A bilateral energy purchase contact; • Selling electricity directly on the market (on IPEX – Italian Power Exchange); • The simplified purchase and resale

	<p>arrangements (<i>ritiro dedicato</i>) (since 1 January 2008): based on an agreement between a producer and an electricity system operator, generated electricity is sold to the grid, instead of being sold through a bilateral contract or directly on IPEX (not compatible with net metering; not applicable to solar energy);</p> <ul style="list-style-type: none"> • Net metering (applicable to plants with capacity 20 kW - 200 kW (lower than 20 kW if commissioned before 31 December 2007). <p>There is an obligation imposed on (<i>gestore dei servizi energetici</i>), which is the system operator, to buy electricity from individual and collective energy producers. This is performed through the <i>ritiro dedicato</i>.</p>
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Table 28 Italy: Renewable Energy Communities; Definition; Legal Framework; REComs in the same building or multi-apartment block; Legal forms; Legislation; Generation, Consumption and Storage

Renewable Energy Communities (REComs)	
Definition	There is no general definition of an energy community/renewable energy community under the Italian law as energy community/ renewable energy community as such is not recognized by the law.
Legal framework for setting up REComs	<p>The Civil Code's general rules relating to cooperative enterprises (incl. energy cooperatives).</p> <p>References to community cooperatives in certain regional laws⁵⁰.</p> <p>Specific rules on simple production and consumption systems' (SSPC): the Energy Authority Resolution n. 578/2013/R/EEL.</p>
RECom in the same building or multi-apartment block	It is not possible to establish an energy community by individuals living in the same multi-apartment building. This option has been currently under political discussion.
Legal forms for REComs	It is possible to use a form of a cooperative, association and limited company for creating a structure having certain features of energy community. These systems are regulated as in any other sector under the Civil Code and are the same as for any other area of activity (not specific for energy), e.g. in Italy the use of cooperatives for producing energy is quite rare

⁵⁰ Such an example reference can be found at: <http://www.legacoop.coop/cooperativedicomunita/sintesi-delle-leggi-regionali/>

compared to other areas. E.g. majority of cooperatives created in Italy operate in health or social areas.

Italian law also provides two other very specific forms of collective renewable energy self-consumers. These systems are considered to be 'simple production and consumption systems' or energy self-sufficiency activities and not networks.

The first one are special energy cooperatives in some mountain regions, historical cooperatives, local municipal electricity undertakings, created around 100 years ago. The legislative framework concerning these cooperatives was created at the moment of the nationalisation of the Italian electricity network (in the 1960-ies). Certain communities were allowed at that time to create together local plants (mainly, hydro-plants) and develop an independent local grid. They own their plant and grid. These are closed systems, which means that new members cannot join the cooperative and they cannot expand to new areas. There is one point of connection between the local grid and the national grid.

What happens in the local grid is not subject to the same rules as what happens outside the local grid.

The second one is called a 'Utility Efficient System' (Sistema Efficiente di Utenza) and is a limited possibility (established by the Energy Authority Resolution 578/2013/R/eel) to use electricity produced locally (use of electricity on another building, when the distance between the place of production and consumption is very small). It applies to owners of systems of up to 20 MW who can consume their produced electricity or sell such electricity to a unique consumer located within the same local, private grid.

These two specific systems are considered to be 'simple production and consumption systems' or energy self-sufficiency activities and not networks.

They are linked with the national grid through one meter - production and consumption happen behind the meter.

The two specific systems, i.e. historical cooperatives

	and 'Utility Efficient System's will not be systematically described here as they are very special.
Legislation enabling and providing specific rights to REComs	There is no specific legislation enabling and providing specific rights to energy communities/renewable energy communities other than very specific legislation on historical cooperatives with their own network as in some mountain areas and on 'Utility Efficient Systems' (the Energy Authority Resolution 578/2013/R/eel.), see above.
Generation, consumption, storage and selling of energy by REComs (in particular, when rules are different from general rules applicable to all self-consumers/prosumers)	<p>Rules concerning generation, consumption, selling and storage of energy are the same RECs as for other self-consumers.</p> <p>Specific rules apply to historical mountain regions cooperatives with their own network. These rules regulate the internal functioning of these cooperatives. Each historic mountain region cooperative has one independent source of energy (e.g. water turbine). All members receive electricity from this source. They do not share electricity between themselves.</p>
Sharing of electricity within the RECom	It is not possible to share electricity directly between members of a cooperative (such as ènostra) ⁵¹ . The energy is sold to the grid and then redistributed to its members (who do not have to be energy producers).

Table 29 Italy: Individual prosumers and Renewables Energy Communities; Consumer rights; Energy Supplier

Individual prosumers and Renewable Energy Communities (REComs)	
Consumers' rights	Members of cooperatives (such as ènostra) are considered as consumers.
Classified as energy supplier?	Cooperatives (as ènostra) may be considered energy suppliers. The law on cooperatives (which regulates all kinds of cooperatives) provides that the cooperative's business must be directed mainly (more than 50% of the business) to its members. Therefore, the cooperative may also decide to sell part of its production outside of the cooperative. In this case, the cooperative will be considered as a supplier. It will have to comply with requirements applicable to suppliers.

⁵¹ Ènostra is an energy cooperative in Italy (<https://www.enostra.it/>). It is a good example for understanding the current situation of REComs in Italy.

Table 30 Italy: Participation of Self-consumers and/or Renewables Energy Communities in Energy Markets; Dynamic Electricity Price Contracts; Permitting Requirements; Administrative Contact Points

Participation of Self-consumers and/or Renewable Energy Communities in Energy Markets	
Are RES self-consumers and REComs allowed to participate in energy markets?	Theoretically it is possible for RES self-consumers and cooperatives to participate in energy markets. However, the requirements for accessing electricity markets are very complicated and demanding (e.g. requesting special bank guarantees), which, in practice, makes it impossible for small players to participate in them.
Dynamic electricity price contracts for self-consumers and/or REComs / time-of-use contracts for self-consumers and/or REComs	For domestic customers, there are 2 options of tariffs possible (1. flat tariff and 2. time of use tariff (peak periods 8-19h on work days and off-peak, on other days)) but not a real dynamic pricing system. Dynamic electricity pricing may be applicable to bigger players.
Permitting requirements on access to the grid	It is possible for self-consumers to sell electricity to the grid. There is an obligation imposed on GSE (<i>gestore dei servizi energetici</i>) - the system operator, to buy electricity from individual and collective energy producers. This is performed through the <i>ritiro dedicato</i> . There is no distinction between renewable energy community and individual self-consumer in relation to access to the national grid and permitting requirements. Requirements on access to the national grid are the same for everybody and everybody has a right to access the grid. The access rules rather depend on the capacity (injection power requested).
Single administrative contact points for permit granting process	There are no single administrative contact points for permit granting processes.

Table 31 Italy: Incentives and Barriers

Incentives and Barriers	
INCENTIVES (legislative, policy and support measures, incl. finance), especially for REComs	There are no specific incentives for creating and running energy communities. However, there exist general support schemes for RES electricity (favourable VAT tax regime, real estate tax deductions, possibility to sell RES electricity on a guaranteed minimum price (" <i>ritiro dedicato</i> "), net-metering (" <i>scambio sul posto</i> ").
BARRIERS (legislative, regulatory and political), especially for REComs	<ul style="list-style-type: none"> Lack of a proper legislation on energy communities (particularly lacking legislation: on

	<p>sharing electricity and on multifamily buildings).</p> <ul style="list-style-type: none"> • The high price of the storage system. • Lack of information on the possible prosumer initiatives. • No special prices by energy companies for prosumers. • Uncertainty in the permission process: until the end of the process the applicant does not know if he/she will get the permit and when (concerning all renewables, not only renewable energy communities). • Frequent changes in the regulation (concerning all renewables, not only renewable energy communities).
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4.7 Portugal

Portuguese law allowed 'self-consumption' of energy from renewable sources (RES) only since 2014. Before then, self-consumption of energy produced from renewable sources was not regulated by law.

The 2014 decree-law (153/2014) replaced the previous decree-laws 362/2007 and 34/2011. It was complemented in 2015 by Ordinance n°14/2015 and Ordinance n° 15/2015 (see also Annex 1).

An important feature of the decree-law 153/2014 is that it does not only regulate RES self-production but applies also to energy production from other sources.

The fact that in some cases it provides the same requirements for production of energy from renewable and non-renewable sources is its important weakness.

Its other weakness is the fact that it has not been updated since 2014. Therefore, it does not reflect recent trends and technologies nor current developments at the EU level.

The most recent regulatory initiatives, i.e. two new regulations expected to be adopted by the Portuguese Energy Regulatory Entity (ERSE) soon, will not specifically address RES prosumers, yet they are likely to impact self-consumption initiatives. They concern smart networks for electricity and the parameters for the necessary conditions to be connected to the public grid. The two regulatory proposals are currently undergoing a public consultation process (consultation open until the end of February 2019).

Table 32 Portugal: RES Self-Consumer (Prosumer): Definitions; Right to generate energy; Storage; Restrictions and Selling of Surplus Energy

RES Self-Consumer (Prosumer)	
Definition	<p>The decree-law 153/2014 refers to a 'producer-consumer' as a 'producer for self-consumption' (i.e. the word prosumer is not used).</p> <p>It does not provide a proper definition of producer-consumer. It uses this term in a very specific context. It states</p>

	<p>that it is necessary to accommodate the figure of the ‘producer-consumer of electrical energy in low-tension’.</p> <p>On the other hand, the law regulates two types of energy production units (1. production units for self-consumption and 2. small production units). Both types of production units include production of energy from renewable sources (for more detail see next point below).</p>
<p>Right to generate energy for self-consumption</p>	<p>According to the decree-law 153/2014, any individual or collective person, including condominiums organized in horizontal property (therefore excluding high multi-apartment buildings) may self-consume the generated energy (N.B. there is no distinction between energy from renewable and other sources).</p> <p>The decree-law 153/2014 considers two types of production ‘units’:</p> <ul style="list-style-type: none"> • Unidades de Produção para Autoconsumo (UPAC) – Production Units for Self-consumption. <p>This production can be from any mix, including renewable or non-renewable sources; energy is produced in the same location where it is consumed. Surplus energy produced by UPAC may be injected into the grid.</p> <ul style="list-style-type: none"> • Unidades de Pequena Produção (UPP) – Small Production Units. <p>These units produce energy which is entirely sold to the grid, through installations of small capacity, and using solely renewable sources. These units are not used for self-consumption (although they are regulated by the same decree-law).</p> <p>Only the first type of production units, i.e. an UPAC, can be considered a self-consumer and, as such, will be the main focus of this document.</p>
<p>Storage of energy</p>	<p>The law provides that the small self-consumption units (UPACs) may or may not use storage batteries.</p> <p>No other information concerning storage is provided by the current law.</p>
<p>Restrictions on size of generation capacity allowed to input into the grid/size of self-production when injecting into the grid</p>	<p>Small production units for self-consumption (UPACs) can function:</p> <ul style="list-style-type: none"> • with any energy mix (including renewable and non-renewable), • with or without a connection to the public grid, and

	<ul style="list-style-type: none"> with an installed capacity that is equal or inferior to 1MW. <p>The excess energy produced by the unit can be sold to the grid.</p> <p>Conversely, UPPs (which are not self-consumption units and can only produce RES) can have an installed capacity which is equal or inferior to 250KW.</p>
<p>Selling of self-generated energy and remuneration for surplus energy put into the grid</p>	<p>The excess energy produced by an UPAC can be sold to the national grid. Yet, the producer/consumer must have a contract with a distribution company to sell energy which was not consumed. The remuneration is always around 90% of market price, plus there are operational costs and the need to have a civil responsibility insurance. Ideally all energy produced under the self-consumption regime (UPACs) should be self-consumed.</p>

Table 33 Portugal: Renewable Energy Communities; Definition; Legal Framework; REComs in the same building or multi-apartment block; Legal forms; Legislation; Generation, Consumption and Storage

<p>Renewable Energy Communities (REComs)</p>	
<p>Definition</p>	<p>There is no definition in Portuguese law of an energy community or a renewable energy community.</p>
<p>Legal framework for setting up REComs</p>	<p>No specific legislation exists.</p>
<p>RECom in the same building or multi-apartment block</p>	<p>This is not yet possible. The law explicitly states that only condominiums organized in 'horizontal property' (i.e. not multi-apartment buildings) can be UPACs.</p> <p>Establishing of a REC by actors situated in a neighbourhood would also be illegal, since it is not possible to sell excess energy through peer-to-peer contracts.</p> <p>Also, each installation can only be connected to one meter and one consumer. It would not be possible to have the same installation connected to various houses through a single connection entry point.</p>
<p>Legal forms for REComs</p>	<p>There are very few collective self-consumption initiatives in Portugal. The ones that exist cannot even be considered <i>sensu stricto</i> collective forms of self-consumption. They are relying on the UPP and UPAC legal regimes.</p>

	An example of an existing initiative is a cooperative Coopérnico, which funds renewable energy projects through crowdfunding.
Legislation enabling and providing specific rights to REComs	No specific legislation exists.
Generation, consumption, storage and selling of energy by REComs (in particular, when rules are different from general rules applicable to all self-consumers/prosumers)	This is not possible under the current law. Nevertheless, it would not be illegal to have a RES installation that is co-owned by a group of shareholders in the case of a UPP (small production unit). In this case all energy produced is directly sold to the national grid with a fixed tariff (there is no self-consumption)
Sharing of electricity within the RECom	This is not possible under the current law.

Table 34 Portugal: Individual prosumers and Renewables Energy Communities; Consumer rights; Energy Supplier

Individual prosumers and Renewable Energy Communities (REComs)	
Consumers' rights	Regarding REComs, consumer rights are not applicable, since REComs are not defined in the Portuguese law. However, as self-consumers, individuals and companies retain their consumer rights.
Classified as energy supplier?	Under the current law, UPACs cannot be considered energy suppliers, since any RES producer will need to inject surplus energy in the grid and is not allowed to supply energy directly to any other consumer.

Table 35 Portugal: Participation of Self-consumers and/or Renewables Energy Communities in Energy Markets; Dynamic Electricity Price Contracts; Permitting Requirements; Administrative Contact Points

Participation of Self-consumers and/or Renewable Energy Communities in Energy Markets	
Are RES self-consumers and REComs allowed to participate in energy markets?	The decree-law 153/2014 has allowed for the first time the 'triple perspective' (<i>tripla perspectiva</i>) of self-consumption. This means that local UPACs can supply third parties (i.e. others using the national grid) by delivering the excess energy to the grid. The supply of third parties is always done via a contract with a distribution company and injection of electricity into the grid.
Dynamic electricity price contracts for self-consumers and/or REComs / time-of-use contracts for self-consumers and/or REComs	Dynamic electricity price contracts, as described in the EU Electricity Directive, are not available in Portugal for any type of electricity consumer, including RES self-consumers. Yet time-of-use tariffs are available for all energy consumers.

<p>Permitting requirements on access to the grid</p>	<p>Every consumer that has a contract with an energy distribution company has access to the grid. There is no need to get a permit for accessing the grid.</p> <p>As to operating permits, the situation differs depending on the UPAC's installed capacity.</p> <p>In the case of UPACs with an installed capacity between 200 and 1500 Watts, which do not sell excess energy to the national grid (because these small installations are dimensioned to work for self-consumption only), no permit is required. The producer must merely do a communication at the SERUP site (see administrative contact points below).</p> <p>In the case of UPACs with an installed capacity higher than 1500 Watts, the producer must be registered at the SERUP site and obtain a certificate ("Certificado de Produção") in order to be able to receive a remuneration for the excess energy injected into the grid.</p> <p>The cost for obtaining this certificate varies according to the installed capacity and the amount of (excess) energy that the UPAC aims to sell back to the grid (Ordinance 14/2015, Art. 19).</p> <p>Costs are not different for renewable self-consumers. It is because the UPACs can be based on any energy mix (renewable and/or non-renewable).</p>
<p>Single administrative contact points for permit granting process</p>	<p>The official governmental platform – Sistema Eletrónico de Registo de Unidades de Produção/SERUP (https://sriesp.dgeg.gov.pt/DGEG/). SERUP is the focal administrative point for UPACs.</p> <p>This is a platform where UPACs (which have an installed capacity equal or higher to 1500 watts) must register their activity.</p> <p>This platform is set by the law.</p>

Table 36 Portugal: Incentives and Barriers

<p>Incentives and Barriers</p>	
<p>INCENTIVES (legislative, policy and support measures, incl. finance), especially for REComs</p>	<p>There are no incentives in Portugal for REComs.</p>
<p>BARRIERS (legislative, regulatory and political), especially for REComs</p>	<ul style="list-style-type: none"> • The legislative framework does not regulate in any way energy communities and does not set specific rules for renewable prosumers.

- There is no specific legislation or measures supporting the individual adoption of RES self-consumption or prosumerism.
- The self-consumption law discourages that self-consumption installations sell excess energy to the grid.
- An UPAC can only sell energy/inject its excess energy back to the national grid. It is not possible for an UPAC to sell energy directly to another UPAC or an individual consumer (e.g. a neighbour).
- Cost of licences are higher for units with a higher installed capacity. (The law explicitly states that the UPACs should aim to match their installed capacity to the local consumption needs).

4.8 Spain

The key legislation regulating self-consumption and energy communities are the Law 24/2013 in combination with the new Royal Decree-Law (RDL) 15/2018 and the Royal Decree (RD) 900/2015. Yet, Spain is currently undergoing significant legal changes in this sector. The Royal Decree-Law 15/2018 is the first act part of the expected bigger legislative change.

At the beginning of June 2018, the new socialist minority government announced several changes in the Spanish energy policy and, in consequence, relevant legislative amendments. On 5 October 2018 the new Royal Decree-Law (RDL) 15/2018 was officially published.⁵² It introduced important changes to the Law 24/2013 and the Royal Decree (RD) 900/2015 in relation to self-consumption. It has:

- allowed to share self-produced energy among various consumers,
- abolished the so-called "sun tax"⁵³,
- defined more reasonable legal consequences of infringements,
- removed the administrative hurdles for installations below 100 kW.

The RDL was ratified by the Spanish Parliament on October 18, 2018. Detailed regulation for its implementation was supposed to be defined by the 3rd of January 2019⁵⁴.

⁵² A Royal Decree Law is an emergency measure (in this case it was used to address the urgent problem of people suffering energy poverty during a period of consistently high electricity prices, which had already created affordability problems for electricity use for cooling in the summer heat, problems which would continue into the autumn and winter with demand for electricity for heating.)

⁵³ The 'sun-tax' was introduced by Spain's royal decree (RD) 900/2015. It was a controversial measure and its abolishment has received lots of press interest (e.g.: <https://www.greentechmedia.com/articles/read/spain-abolishes-the-tax-on-the-sun#gs.BPBaA65k>, <https://www.reuters.com/article/us-spain-politics-electricity/spain-scraps-sun-tax-in-measures-to-cool-electricity-prices-idUSKCN1MF1T0>)

⁵⁴ It has not been adopted at the moment when this report was drafted.

As the Parliament not only approved these emergency measures but also agreed to debate the RDL as a full draft law, several other aspects of renewable prosumer policy and practice (to favour renewable self-consumption and renewable energy communities, renewable energy storage with batteries and vehicles,) can be expected to be further promoted or regulated. This may be done through the further debate on the draft legislation (further evolution of RDL 15/2018), other parallel proposals, for example the draft Royal Decree on Access and Connection to the Electricity Grid⁵⁵, a new law (idea promoted by the Murcian regional government) and/or transposition of the recent recast of the EU Renewable Energy Directive.

Table 37 Spain: RES Self-Consumer (Prosumer): Definitions; Right to generate energy; Storage; Restrictions and Selling of Surplus Energy

RES Self-Consumer (Prosumer)	
Definition	<p>The revised Article 9.1 of Law 24/2013 (as per RDL 15/2018) defines self-consumption as the consumption by one or several consumers of electric energy from generation installations situated close to and associated with the consumption installations.</p> <p><i>(Before: Law 24/2013, Article 9(1) defined 'self-consumption' as the consumption of electric energy from generation installations of a consumer or from generation installations which are connected to the consumer through a direct line of electric energy.)</i></p>
Right to generate energy for self-consumption	<p>Consumers can generate electricity for their own use (as defined in Law 24/2013, RDL 15/2018 and RD 900/2015).</p>
Storage of energy	<p>The Law 24/2013, Art. 48 mentions "services for energy storage (<i>"servicios de recarga energética"</i>) but it seems to apply mainly to electricity provided for charging electric vehicles or batteries of consumer products (the aspect of self-consumption is not mentioned in this context).</p> <p>The law states: <i>"1. The main function of the energy recharging service shall be to provide free or onerous energy through vehicle charging services and storage batteries under conditions that allow charging in an efficient manner and at minimum cost to the user and to the electricity system.</i></p> <p><i>2. The energy recharging services may be provided by any consumer, who must comply with the requirements established by regulation by the Government"</i></p> <p>However, the following parts of the law are all about Electric vehicles charging stations.</p>
Restrictions on size of generation	<p>There is no restriction on the size of the systems. Systems</p>

⁵⁵ <https://www.mincotur.gob.es/energia/es-ES/Participacion/Paginas/RD-acceso-conexion-redes-transporte.aspx>. Allegations to this draft law were provided by the "Alianza por el Autoconsumo" in November 2018.

capacity allowed to input into the grid/size of self-production when injecting into the grid

below 100 kW are not obliged to be inscribed in the registry of electricity generation installations.

(Before: RD 900/2015 provided that the sum of the installed power of the production installation shall be equal to or lower than the power contracted by the consumer. In case the installation was primarily set-up for self-consumption purposes, the capacity contracted by the consumer had to be equal or below 100 kW (so-called "Type 1" installation).)

Selling of self-generated energy and remuneration for surplus energy put into the grid

Surplus of self-generated can be exported to the grid. According to RDL 15/2018, Art. 18.5, surplus generation will be treated in the same way as any other generated electricity. Note: It is not clear at this stage if this is meant only in technical terms or also in economic terms, i.e. if the excess energy should get at least the market value. Based on Art. RDL 15/2018, Art. 18.5, it is expected that the surplus electricity will be remunerated as electricity produced by any other power generation plant, i.e. at market prices. This interpretation is not yet confirmed. It is likely to be clarified and, in consequence, permitted by further legislation in the coming months.

For the time-being, the legislation from before the adoption of RDL 15/2018 still applies.

(Before the new RDL 15/2018, only installations above 100 kW duly registered as production installations (so-called "Type 2" installations) could effectively sell their surplus energy (as they could be remunerated for the excess electricity). Excess energy was remunerated at the market price at the time (hour) that it was injected in the grid. Installations equal or below 100 kW (so called "Type 1" installations) could inject surplus electricity to the grid but did not receive any kind of remuneration for it.)

Table 38 Spain: Renewable Energy Communities; Definition; Legal Framework; REComs in the same building or multi-apartment block; Legal forms; Legislation; Generation, Consumption and Storage

Renewable Energy Communities (REComs)	
Definition	<p>There is no exact definition of a local energy community or a renewable energy community</p> <p>The RDL 15/2018 defines self-consumption now as "the consumption by one or more consumers of electrical energy coming from production facilities close to and associated with those of consumption." (Art. 18). It further says that "The concept of 'installations close to self-consumption' will be developed by regulation. In any case, it will be understood as those that are</p>

	<p>connected to the internal network of the associated consumers, or are connected to them through direct lines, or are connected to the low voltage network derived from the same transformation centre.”</p> <p>This means that for instance ‘neighbours’ communities’, i.e. people living in the same apartment building have the right to shared self-consumption.</p>
<p>Legal framework for setting up REComs</p>	<p>Information on legal framework has been provided in other parts of the tables.</p>
<p>RECom in the same building or multi-apartment block</p>	<p>Individuals living in the same multi-apartment building or in the same neighbourhood may establish and run a separate energy community. The law explicitly mentions that self-consumption by various consumers is possible.</p> <p><i>(Before the new RDL: individuals could set up a community, but they needed to consider that RD 900/2015 explicitly ruled out that a generator could be connected to the internal network of several consumers.)</i></p>
<p>Legal forms for REComs</p>	<p>Energy communities can have different legal forms. They can be established as e.g.:</p> <ul style="list-style-type: none"> • not-for-profit cooperatives (Sociedad Cooperativa de Consumidores y Usuarios, sin ánimo de lucro), according to Law 27/1999 in Spain or Law 18/2002 in case of Catalonia. • “Property Community’ (comunidad de bienes) which allows any activity, including selling electricity, if this is mentioned in the statutes. <p>Other legal forms may also be possible.</p>
<p>Legislation enabling and providing specific rights to REComs</p>	<p>There are no specific rights for energy communities although under RDL 15/2018 ‘installations close to self-consumption’ (see above) do have certain rights which will be extended and clarified soon.</p>
<p>Generation, consumption, storage and selling of energy by REComs (in particular, when rules are different from general rules applicable to all self-consumers/prosumers)</p>	<p>If an energy community is established e.g. as a cooperative (or possibly as other legal form), it can generate, consume, store and sell renewable energy.</p> <p>Storage is not mentioned in the RDL (and the Law 24/2013, which is modified by the RDL) with regards to self-consumption. (see also above on storage by RES self-consumers)</p> <p>Recent court sentences nullifying some aspects of the 2015 legislation have made it clear that ‘installations close to self-consumption’ can install and use battery</p>

	storage for excess renewable energy from their self-consumption installation.
Sharing of electricity within the RECom	<p>As per the newly modified Article 9.1 of the Law 24/2013 various consumers (and as such energy communities) can share self-produced energy.</p> <p><i>(Before: There was no specific mentioning of sharing energy. As self-consumers and generators were supposed to be the same entity, energy sharing was not really envisioned.)</i></p>

Table 39 Spain: Individual prosumers and Renewables Energy Communities; Consumer rights; Energy Supplier

Individual prosumers and Renewable Energy Communities (REComs)	
Consumers' rights	Both individual prosumers and RECs maintain their consumer rights as there is no mentioning in laws of different consumer rights for self-consumers.
Classified as energy supplier?	<p>Type 1 customers are considered only consumers; Type 2 customers are considered producers and consumers according to RD 900/2015 (Art. 4, 1 a and b). Type 2 customers above the threshold of 100 kW must be duly registered and are subject to the legislation relevant for energy producers. The details will still be defined in the upcoming regulation.</p> <p>"Type 1" installation: equal or below 100 kW; "Type 2" installation: above 100 kW. "Type 1 consumers"/"Type 2 consumers": consumers operating installations of Type 1 or 2.</p>

Table 40 Spain: Participation of Self-consumers and/or Renewables Energy Communities in Energy Markets; Dynamic Electricity Price Contracts; Permitting Requirements; Administrative Contact Points

Participation of Self-consumers and/or Renewable Energy Communities in Energy Markets	
Are RES self-consumers and REComs allowed to participate in energy markets?	<p>Type 1 customers are considered only consumers and therefore are not allowed to participate in energy markets.</p> <p>Type 2 customers are considered both producers and consumers according to RD 900/2015 (Art. 4, 1 a) and b) and are allowed to participate in the wholesale market directly or through aggregators.</p>

<p>Dynamic electricity price contracts for self-consumers and/or REComs / time-of-use contracts for self-consumers and/or REComs</p>	<p>The typical time of use contracts (<i>Tarifa de Discriminación Horaria</i>) in Spain are contracts with higher tariffs in the afternoon until 23h00 in summer and 22h00 in winter and lower tariffs during the rest of the night and morning. They are available to any customer.</p> <p>However, these tariffs are not directly linked to market prices.</p> <p>We are not aware of any other types of contracts existing in Spain.</p>
<p>Permitting requirements on access to the grid</p>	<p>The same permitting requirements as for other self-consumers apply to REComs.</p>
<p>Single administrative contact points for permit granting process</p>	<p>For self-consumers and in the case of RECs, there is no single administrative contact point for permit granting process.</p> <p>Self-consumers have to contact at least the Distribution System Operator (for access to the distribution grid). (This may not be required anymore now for installations below 15 kW as Article 7.1 and 7.2 of RD 900/2015 have been removed by LRD).</p> <p>For installations above 100 kW it is also necessary to subscribe to the pre-allocation register (registro de preasignación de retribución) or to the administrative register of production installations (registro administrativo de instalaciones de producción).</p>

Table 41 Spain: Incentives and Barriers

<p style="text-align: center;">Incentives and Barriers</p>	
<p>INCENTIVES (legislative, policy and support measures, incl. finance), especially for REComs</p>	<p>In some Autonomous Regions there may exist subsidies to support RE installations, e.g. a certain amount per kW or a percentage of the investment, see https://sotysolar.es/placas-solares/subvenciones. However, the available budgets are limited.</p> <p><i>N.B.: Currently there are no incentives or other type of support to create renewable energy communities at the national level.</i></p>
<p>BARRIERS (legislative, regulatory and political), especially for REComs</p>	<p>The recently adopted RDL will remove some of the barriers but may add others. As the legislative changes are very recent, it is difficult at this stage to say for sure which barriers will persist despite the adoption of the RDL.</p>

	<p>Before the new RDL the main barriers were:</p> <ul style="list-style-type: none"> • No remuneration for excess electricity for installations below 100 kW; • "Solar tax" for any electricity generated and self-consumed; • Complicated legislation, setting potentially high fines for non-compliance and potentially discouraging customers to become prosumers; • No legal recognition of energy communities. <p>It is expected that potential barriers RECs may face currently are:</p> <ul style="list-style-type: none"> • Unclear or too low remuneration for excess power; • No clear definition of storage; • No specific support for RE installations; • Lack of a definition and a clear description of an energy community and its rights, obligations etc • Potential difficulties to come to an agreement between neighbours within an apartment block on the value of investing in self-consumption and/or forming or participating in energy communities.
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4.9 The Netherlands

The current legislative framework is mainly composed of the Electricity Act (legislation which sets general principles) and the 'Decree for Experiments with Decentralised Renewable Electricity Generation', which is also called 'Rules of Experiment' and which set certain exceptions to the Electricity Act. Some additional rules are set in the tax law.

However, this legislative framework does not correspond to the latest technical developments and reality of citizens cooperation.

The Rules of Experiment are currently being amended with the purpose of their simplification and it is expected that, once amended, they should facilitate the creation and functioning of energy cooperatives. The Electricity Act is planned to be amended in 2022 (to better adapt to the energy transition process).

Table 42 Netherlands: RES Self-Consumer (Prosumer): Definitions; Right to generate energy; Storage; Restrictions and Selling of Surplus Energy

RES Self-Consumer (Prosumer)	
Definition	There is no proper definition of a renewable self-consumer or a prosumer in the Dutch law. The reason for this may be the fact that under Dutch law everybody may produce electricity for their own use.

	<p>Even if the term 'prosumer' is not defined in Dutch law, there are legal provisions which incentivise consumers to engage in electricity generation (Roggenkamp & Woerdman, 2011).</p>
<p>Right to generate energy for self-consumption</p>	<p>In the Netherlands production of its own energy and its self-consumption is considered as a general right (even though not set in legislation).</p>
<p>Storage of energy</p>	<p>Everybody, incl. self-consumers, can store electricity in their own premises (even though it is not explicitly set as a specific right in legislation).</p> <p>As to the energy storage, it is regulated through technical rules (e.g. for Electric Vehicles).</p>
<p>Restrictions on size of generation capacity allowed to input into the grid/size of self-production when injecting into the grid</p>	<p>Restrictions on generation capacity are related to particular schemes and advantages. For example, there is a limit of a maximum own consumption of 5.000 kWh/year for prosumers that want to participate in the net-metering system.</p>
<p>Selling of self-generated energy and remuneration for surplus energy put into the grid</p>	<p>Self-generated energy injected into the grid is remunerated.</p> <p>In practice, remuneration is mainly provided through the net metering system (with a use of a back-feeding meter). N.B.: this system has been introduced in the Netherlands as a temporary solution.</p> <p>The self-metering system functions in the following way: A prosumer produces energy and injects the surplus into the grid. At the end of the year, the prosumer gets money for the quantity provided to the grid (calculated as energy produced minus energy consumed). For the surplus of electricity injected into the grid, the self-consumer receives a remuneration from an energy supplier (a fixed price for the electricity fed into the grid).</p> <p>The advantages of the net-metering system are tax exemptions on the netted electricity (electricity that is self-consumed).</p> <p>The shortcoming of the net-metering system is the fact that a contract is possible with only one single supplier (a single buyer of produced energy). In addition, in practice, the price paid for energy under the net-metering system is often lower than the retail market price for electricity.</p>

Table 43 Netherlands: Renewable Energy Communities; Definition; Legal Framework; REComs in the same building or multi-apartment block; Legal forms; Legislation; Generation, Consumption and Storage

Renewable Energy Communities (REComs)	
Definition	<p>There is no specific separate definition of an energy community in the Dutch legal system.</p> <p>On the other hand, legislation in the Netherlands allows for collective organisations to engage in electricity generation.</p> <p>In particular, since January 2014 the Dutch law introduced a 'postcode area' system, which is applicable to collective prosumers engaged in local sustainable energy production and who want to supply their own members. This system is also called 'collective net metering'. It allows for a discount from the amount of the energy tax to be provided to the members of the cooperative procuring electricity produced by this cooperative, given that the production installation is located within the same or directly adjacent postcode area where the consuming members live. There is a limitation of a maximum own consumption applicable to this scheme, which is a self-sufficiency level of maximum 10.000 kWh/year. (Butenko, 2016b)</p>
Legal framework for setting up REComs	<p>In addition to legislation regulating a 'postcode area' system, there are also some special rules (exceptions) applying to energy cooperatives. These are derogations to the Electricity Act provided by the Rules of Experiment and tax law rules. In particular, the Rules of Experiment allow selected projects (in limited number) by local sustainable energy cooperatives (cooperations and associations) to apply exemptions to the Electricity Act on a number of provisions.</p>
RECom in the same building or multi-apartment block	<p>It is possible in the Netherlands to create a cooperative of people living in the same building or multi-apartment block.</p>
Legal forms for REComs	<p>The common legal form used to create energy communities is an association (the cooperative).</p>
Legislation enabling and providing specific rights to REComs	<p>There is no legislation providing specific rights to RECs.</p>
Generation, consumption, storage and selling of energy by REComs (in particular, when rules are different from general rules applicable to all	<p>The rules concerning energy generation are the same for energy communities and individual self-consumers.</p> <p>The rules concerning selling of energy differ depending on the size of the connection (above certain size of the</p>

<p>self-consumers/prosumers)</p>	<p>connection, the rules for energy suppliers apply).</p> <p>Depending on whether energy is sold via net-meter, 'postcode area' arrangement or a separate commercial contract, the tax regime for this surplus electricity would be different.</p> <p>Energy cooperatives may, similarly to individual self-consumers, store electricity on their own premises.</p>
<p>Sharing of electricity within the RECom</p>	<p>Energy cooperatives and other communities are entitled to exchange electricity among themselves. However, it is extremely difficult (similarly as it is for individual prosumers) and requires a supply permit.</p> <p>The system used frequently by the cooperatives is to provide produced energy to a supplier who then sells it 'back' to members of the cooperative. However, this system cannot be considered <i>sensu stricto</i> 'energy/electricity sharing'.</p> <p>Special rules on energy sharing apply to 'postcode area' system.</p>

Table 44 Netherlands: Individual prosumers and Renewables Energy Communities; Consumer rights; Energy Supplier

<p>Individual prosumers and Renewable Energy Communities (REComs)</p>	
<p>Consumers' rights</p>	<p>It is considered (even though not stated explicitly in legislation) that self-consumers and members of energy communities maintain their consumer rights even when they produce their own energy and when they sell it to the grid.</p>
<p>Classified as energy supplier?</p>	<p>Prosumers do not need a supplier's licence to self-generate and consume their own energy.</p> <p>On the other hand, a supplier's licence is required for supplying energy to small and medium consumers and when their connection to the grid is above a certain size. Such licence is provided by the Dutch national regulator.</p> <p>Although theoretically it is possible for prosumers (both individual and collective) to apply for a supplier's licence, in practice it is very complicated. Requirements for obtaining a licence are difficult to comply with. These requirements are designed for traditional large energy suppliers and do not take into account smaller actors (prosumers) and their</p>

capabilities.

Examples of requirements imposed on prosumers-suppliers: prosumers need to demonstrate that they possess the minimum organizational, financial and technical characteristics which are necessary to perform the tasks of energy suppliers; prosumers have to comply with universal service obligation, which means that they must supply any consumer that requires it (Butenko, 2016b).

Table 45 Netherlands: Participation of Self-consumers and/or Renewables Energy Communities in Energy Markets; Dynamic Electricity Price Contracts; Permitting Requirements; Administrative Contact Points

Participation of Self-consumers and/or Renewable Energy Communities in Energy Markets	
Are RES self-consumers and REComs allowed to participate in energy markets?	<p>It is not forbidden for prosumers and energy communities to participate in electricity markets.</p> <p>However, they can participate in retail electricity markets only if they have a status of a supplier (and therefore obtain a supply permit). To obtain a supplier license it is necessary to fulfil certain requirements (see above).</p> <p>It is also difficult for prosumers to be recognised as energy producers and as such access the wholesale markets. This is again due to the requirements which are imposed on the market participants (e.g. an obligation for parties trading on the wholesale market to act as 'program responsible parties' that are responsible to ensure electricity grid balancing). These requirements are designed for traditional large market players (Butenko, 2016b)</p> <p>Therefore, the market access for renewable prosumers and energy communities, although theoretically possible, is extremely difficult.</p>
Dynamic electricity price contracts for self-consumers and/or RECs / time-of-use contracts for self-consumers and/or RECs	<p>Dynamic electricity price contracts and flexible price contracts exist in the Netherlands but are limited. They are made available only by certain energy providers. They are quite new experimental solutions made possible by the 'Rules of Experiment'.</p>
Permitting requirements on access to the grid	<p>Everybody can get connected to the grid. It is not linked to any requirement to participate in the costs of upgrading the grid (the responsibility for upgrading the grid is in the hands of DSOs).</p> <p>However, it is necessary to comply with certain technical requirements, which are strict and may be difficult to comply with as they are set for traditional supply companies.</p>

Single administrative contact points for permit granting process

All the formalities related to the permit granting are managed by NVO, which is part of the Ministry of Economic Affairs. The procedure applying to cooperatives is the same as for other (incl. big) actors. There is also a general website explaining procedures (this is not specific for cooperatives but relevant for all actors).

Table 46 Netherlands: Incentives and Barriers

Incentives and Barriers	
INCENTIVES (legislative, policy and support measures, incl. finance), especially for REComs	<ul style="list-style-type: none"> • Subsidies for renewable energy production. • Tax reduction schemes for solar PVs in certain local communities (on the use of self-produced energy). • Projects aiming to stimulate local communities by the Ministry of Economic Affairs (two programmes supporting local communities through facilitating knowledge exchange). • Setting national objective of abolishing gas in house heating. • Tax advantages related to the 'postcode area' system.
BARRIERS (legislative, regulatory and political), especially for REComs	<ul style="list-style-type: none"> • The current laws, which are outdated and complicated (and make it difficult to set and operate energy communities). • Availability of land for renewable projects; • Lack of/insufficient public acceptance for renewable projects ('not in my backyard'). • Unclear rules on storage of energy.

5. Comparative analysis of nine EU countries: summary of main challenges and opportunities

As the main purpose of this document is to provide baseline information about prosumers in the EU and nine EU Member States, it only provides short summary analysis. The analytical work will be continued by the PROSEU project within other future tasks of WP3 (Policy, Regulation and Governance) and through the work of other WPs.

The analysis of regulatory frameworks for individual and collective renewable energy prosumers has shown that while at the EU level there is recently a significant effort in promoting the integration of self-consumption as a key pillar of the energy transition – including the case of 'renewable energy communities' (REComs) and of 'jointly acting renewables self-consumers' – in the nine Member States analysed there is a significant gap in laws that support and incentivize self-consumption, and specifically collective forms of self-consumption.

The nine national legal frameworks described in this document indicate different approaches to (individual and collective self-consumption) regulation.

The majority of the nine legal frameworks are either undergoing changes or possible changes are being discussed by national governments (e.g. Belgium/Flanders, Italy, Portugal, Spain, the Netherlands, the UK/Great Britain), with some proposals currently open for public consultation (e.g. Portugal).

These ongoing or discussed legislative changes show that there is a political openness and will to enable and facilitate individual and collective prosumerism. This may be related to the recent developments in EU laws. As the newly agreed and/or adopted EU law (as shown in section 3) directly regulates prosumers and energy communities, these regulations will need to be transposed into national legal systems. In this context, EU law may be a catalyser of change for incentivizing RES prosumers.

Another driver seems to be the digitalization of electricity services and the challenges posed by smart meters in view of data protection laws and other cross-cutting issues (e.g. open data, open software, data management etc.).

In addition, problems such as energy poverty, the challenge of energy democracy, global challenges related to energy security and climate change seem to be promoting new energy policies and regulations.

Our analysis of the national frameworks shows the following key incentives (opportunities) and challenges for individual and collective prosumers in the nine countries:

In Belgium/Flanders, there are no regulations on energy communities, which presents a serious obstacle to their development. It is also not possible to exchange electricity directly with a neighbour. REComs must use the grid and pay a 'cascade tariff' to a grid operator. This represents a major challenge to the growth of collective forms of self-consumption and reduces the possibility for setting up various business models run by communities. Yet, industrial consumers can exchange energy more easily by installing a private grid.

Incentives for energy efficiency represent indirectly an incentive to RES prosumer collectives. To achieve the necessary standards to earn a financial incentive (under a program to increase energy efficiency in building renovation), buildings need to integrate RES. Alternatively, the building owner could participate in an energy cooperative. Green certificates are also an incentive but do not provide much profit and are not applicable to small self-consumers.

In **Croatia** the "system of guarantees of origin" (GO) is an important incentive for RES prosumers. One GO corresponds to the sale of 1MWh of electricity from renewable energy sources delivered to the grid. Nevertheless, while RES producers and prosumers can profit from this system, 1 MWh is a quite high threshold for small scale producers, and in practice means that the GO system mainly applies to aggregators. Another incentive is the suppliers' energy savings obligation system. Also, the Croatian Fund for Environmental Protection and Energy Efficiency supports renewable energy sources through various tenders, including those specifically intended for family houses.

Key challenges in Croatia include the monthly rather than yearly calculation period for determining the value of surplus energy injected into the grid. In the case of renewable sources of energy, seasons are crucial indicators for production ratios, yet Croatian law does not account for seasonal changes (in temperature, solar radiance, wind, etc.). Securing easier and more affordable financing for procurement of the technology and simplifying administrative procedures would provide a new window of opportunity for Croatian prosumers.

In **France**, REComs still face a few difficulties related to the grid. Grid tariffs are sometimes more expensive for collective self-consumption. The insufficient legislative and policy framework is an important barrier too. However, the government declared to launch tenders for collective self-consumption, which now do not benefit from any specific support scheme.

Germany has advanced considerably over the last two decades in providing a strong regulatory framework for RES prosumers. Nevertheless, the numerous changes in the EEG 2017 law, make it a very complex law. There is more than one applicable law, which results in a complex legislative structure and often extra costs for prosumers. In addition, in Germany, privileges are not equal for single households and other actors (households are more privileged than energy communities).

On the other hand, RES installation operators receive financial incentives (i.e. feed-in compensation). There are funding and support initiatives by the Federal Government and in several Federal States to promote RES. There are also advantages for energy communities in the auctioning process and some tax exemptions.

In **the UK/Great Britain**, the FIT scheme, which has been an important incentive for the RES initiatives, will end in April 2019. RES energy groups fear that self-consumers will not be remunerated now for their left-over self-generated energy fed into the grid. The lack of policy support in the form of subsidies and cheap access to capital is perceived as a main barrier for the development of RES initiatives and REComs.

On the positive side, modifications to the Grid Code and to the Balancing and Settlement Code are foreseen in 2019. It is expected that these changes will open the door to virtual parties (including virtual energy communities) and provide direct access to the wholesale market for self-consumers and REComs.

Italy has a quite fragmented legislation on prosumers as the competences on production, transmission and distribution of energy are shared between the state and the regions. The existing legal framework does not allow collective prosumers to have all features of energy communities (e.g. it is not possible to share electricity within an energy cooperative). As in the case of Belgium/Flanders, it is not possible to set up a RECom in the same multi-apartment building. There are also no particular incentives for creating and running energy communities (even though there exist general support schemes for RES electricity).

On the other hand, in Italy there are historical cooperatives, which have their own grid and function as autonomous systems. Their existence provides a 'case study' and inspiration for future communities. Also 'Utility Efficient Systems' are an interesting example of a collective form of self-consumption. Moreover, there seems to be a strong political will to better enable individual and collective forms of prosumerism.

In **Portugal**, all excess energy produced in a self-consumption regime can be sold to the grid, yet for a very low price which does not easily pay off the initial investment. The self-consumption law exists mainly as an energy efficiency measure and does not promote or encourage RES prosumers. New EU legislation is pressuring the Portuguese Regulatory Entity (ERSE) to make changes in legislation. In Portugal no incentives for renewable energy communities were found.

In **Spain**, until the new Royal Decree (RD-L 15/2018), a solar tax, which was applied to any electricity generated and self-consumed, was an important obstacle to any development of prosumerism. This tax has been abolished now and other legislative changes have taken place recently. They have been part of the bigger legislative transformation that is currently ongoing and is expected to continue. It is difficult to state at this stage which barriers will persist, as the legislative changes have been very recent. The barriers include e.g. high fines imposed for non-compliance (which discourages prosumers), complicated legislation and no legal recognition of energy communities. There are also no incentives or other type of support to create renewable energy communities in Spain. The new Royal Decree and the setting up of a new Minister for the Ecological Transition, with ambition goals for reducing carbon emissions until 2030 is an important opportunity for future RES Prosumers and can encourage a much wider adoption of RES for collective self-consumption.

In **the Netherlands**, the legislative framework is outdated and complicated. The government is testing new ideas though by providing temporary derogations to the Electricity Act. It introduced, for example, a 'postcode area' system. The 'postcode area' system is an opportunity for collective prosumers to develop locally their own energy community and benefit from an energy tax discount.

An important barrier in the Netherlands is low availability of land for RES projects. Virtual RECs (i.e. using a RES installation which can be outside the residence area) would be a form of surpassing this barrier.

Meaningfully, and despite the various legal 'blanc spots' across EU countries a lot seems to be happening at the bottom-up level, as local communities and municipalities develop their own production and self-consumption models. Hence, countries with more 'friendly' legal frameworks such as Germany, the Netherlands and the UK/Great Britain have a much bigger number of RES prosumer initiatives, operating under a greater variety of business and financial models than in cases such as Portugal, Spain and Croatia (these discrepancies will be further discussed in upcoming deliverables of PROSEU's WP2).

6. Conclusions

This study shows that new EU prosumer legislation is likely to be driving changes at the national level, by promoting more progressive energy policies, centred on the role of citizens as active energy consumers.

At the heart of the energy transition, regulatory frameworks play a key role. Above all, regulators and policy makers need to constantly balance economic and environmental concerns, with grid stability and other technological challenges with social inclusion policies.

Nevertheless, there is still a wide disparity at the country level, between countries with an extensive set of laws to regulate RES self-consumption (e.g. Germany) and others where laws are not meeting the

present needs for setting up collective forms of self-consumption and are restricting the implementation and development of RES prosumerism (such as the cases of Belgium/Flanders or Portugal).

The absence of legislation regulating collective forms of self-consumption is the most striking challenge for the further development of RES prosumerism, while progress with EU laws seems to be the most relevant opportunity to implement legal changes at the national level that can trigger a wider adoption of RES technologies, by individuals and collectives who will be both producers and self-consumers.

Where there is no other specific legislation or measures supporting the individual adoption of RES self-consumption or prosumerism, socio-cultural, economic and ecological drivers may trigger individual and collective action, such as: ability to be less dependent on large utility companies or the possibility to pay less for electricity.

Although this was not the focus of this report, the examples encountered in the countries analysed suggest that bottom-up action is speeding up the development of prosumerism at the local level, even where governments fail to provide a supporting legal framework. Future research could focus on bottom-up and top-down dynamics.

Upcoming deliverables of the PROSEU project will provide a broader overview of other policy frameworks that may create barriers or opportunities for RES prosumerism (i.e. D3.2 and D3.3), as well as specific comparisons of business models (i.e. from WP4) across Europe. Further analysis of EU and national legislative frameworks will be carried out by WP3 through other deliverables.

7. References

7.1 Literature Cited

- Bauwens, T. (2016). Explaining the diversity of motivations behind community renewable energy. *Energy Policy*, 93, 278–290. <https://doi.org/10.1016/j.enpol.2016.03.017>
- Bauwens, T., & Devine-Wright, P. (n.d.). Positive energies? An empirical study of community energy participation and attitudes to renewable energy. *Energy Policy*, 118(2018), 612–625. <https://doi.org/10.1016/j.enpol.2018.03.062>
- Boo, E., Pasqualini, T., Dallamaggiore, E., Dunphy, N., Lennon, B., Meade, K., ... Ota, J. (2016). ENTRUST. report on policy and regulation landscape, 231.
- Brange, L., Englund, J., & Lauenburg, P. (2016). Prosumers in district heating networks – A Swedish case study. *Applied Energy*, 164, 492–500. <https://doi.org/10.1016/j.apenergy.2015.12.020>
- Bremdal (2011), A Prosumer Oriented Business in the Energy Market. IMPROSUME Publication in “Residential Prosumers in the European Energy Union” JUST/2015/CONS/FW/C006/0127,

- Framework Contract EAHC/2013/CP/04, by GfK Belgium consortium, 2 May 2017. Retrieved from:
- (https://ec.europa.eu/commission/sites/beta-political/files/study-residential-prosumers-energy-union_en.pdf);
- Brummer, V. (2018). Community energy – benefits and barriers: A comparative literature review of Community Energy in the UK, Germany and the USA, the benefits it provides for society and the barriers it faces. *Renewable and Sustainable Energy Reviews*, 94, 187–196. <https://doi.org/10.1016/j.rser.2018.06.013>
- Burke, M. J., & Stephens, J. C. (2017). Energy democracy: Goals and policy instruments for sociotechnical transitions. *Energy Research & Social Science*, 33, 35–48. <https://doi.org/10.1016/j.erss.2017.09.024>
- Butenko, A. (2016). User-Centered Innovation and Regulatory Framework: Energy Prosumers' Market Access in EU Regulation. <https://doi.org/10.2139/ssrn.2797545>
- Butenko, A. (2016b). Sharing Energy: Dealing with Regulatory Disconnect in Dutch Energy Law. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2847590
- Capellán-Pérez, I., Campos-Celador, Á., & Terés-Zubiaga, J. (2018). Renewable Energy Cooperatives as an instrument towards the energy transition in Spain. *Energy Policy*, 123, 215–229. <https://doi.org/10.1016/j.enpol.2018.08.064>
- IEA-RETD (2014), Couture, T., Barbose, G., Jacobs, D., Parkinson, G., Chessin, E., Belden, A., ... Rickerson, W. (2014). *Residential Prosumers: Drivers and Policy Options (Re-Prosumers)* (No. LBNL-6661E, 1163237). <https://doi.org/10.2172/1163237>[This report is not correctly quoted, it has to be IEA-RETD (2014), etc., see page in the report itself.]
- Geels, F. W. (2010). Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective. *Research Policy*, 39(4), 495–510. <https://doi.org/10.1016/j.respol.2010.01.022>
- Giannakis, G. (2007). Monitoring and Evaluation of the RES directives implementation in EU27 and policy recommendations for 2020. In *RES2020 Workshop*.
- GfK Belgium consortium (2017) Residential Prosumers in the European Energy Union, Mapping the legal and regulatory framework in the 28 Member States, Iceland and Norway. Retrieved from: https://ec.europa.eu/commission/sites/beta-political/files/study-residential-prosumers-energy-union_en.pdf
- Roggenkamp, M& Woerdman E. (2011) Legal design of carbon capture and storage, developments in the Netherlands from an international and EU perspective, energy and law, *European Journal of Law and Economics*. 31(2):235-235

- Heffron, R. J., & Talus, K. (2016). The evolution of energy law and energy jurisprudence: Insights for energy analysts and researchers. *Energy Research & Social Science*, *19*, 1–10. <https://doi.org/10.1016/j.erss.2016.05.004>
- Hisschemöller, M., & Sioziou, I. (2013). Boundary organisations for resource mobilisation: enhancing citizens' involvement in the Dutch energy transition. *Environmental Politics*, *22*(5), 792–810. <https://doi.org/10.1080/09644016.2013.775724>
- Jenkins, K., Sovacool, B. K., & McCauley, D. (2018). Humanizing sociotechnical transitions through energy justice: An ethical framework for global transformative change. *Energy Policy*, *117*, 66–74. <https://doi.org/10.1016/j.enpol.2018.02.036>
- Josh. R (2016) 'Prosumer Rights : Options for an EU legal framework post-2020', Josh Roberts, ClientEarth for Greenpeace. Retrieved from: <https://www.documents.clientearth.org/library/download-info/prosumer-rights-options-for-an-eu-legal-framework-post-2020-2/>
- Kalkbrenner, B. J., & Roosen, J. (2016). Citizens' willingness to participate in local renewable energy projects: The role of community and trust in Germany. *Energy Research & Social Science*, *13*, 60–70. <https://doi.org/10.1016/j.erss.2015.12.006>
- Masson, G., & Briano, J. I. (n.d.). REVIEW AND ANALYSIS OF PV SELF-CONSUMPTION POLICIES, 82.
- Seyfang, G., Park, J. J., & Smith, A. (2013). A thousand flowers blooming? An examination of community energy in the UK. *Energy Policy*, *61*, 977–989. <https://doi.org/10.1016/j.enpol.2013.06.030>
- Schneiders, A. & Shipworth, D. (2018). 'Energy Cooperatives: A Missing Piece of the Peer-to-Peer Energy Regulation Puzzle?'. In: Consumers at the Heart of the Energy System?: British Institute of Energy Economics (BIEE) Conference. University of Oxford (Oxford, UK). Retrieved from: (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3252486)
- Wirth, S. (2014). Communities matter: Institutional preconditions for community renewable energy. *Energy Policy*, *70*, 236–246. <https://doi.org/10.1016/j.enpol.2014.03.021>

7.2 Deliverables from other EU projects

- Geels, F.W. (Ed.). (2016). Comparing transition pathways in different countries. PATHWAYS - Exploring transition pathways to sustainable, low carbon societies (Deliverable N° 2.4).
- Jensen, C.L., Goggins, G., Fahy, F. (2017). Construction of typologies of sustainable energy consumption initiatives. ENERGISE – European Network for Research, Good Practice and Innovation for Sustainable Energy (Deliverable N° 2.4).

- Landholm, D., Holsten, A., Revell, P., Henderson, C., Groß, H., Kehrer, J., Martellozzo, F., Hendrickson, C.Y., Kähkönen, T. (2016). Carbon Reduction and Community Impact Scoreboard. TESS - Towards European Societal Sustainability (Deliverable N° 2.4).
- Ooms, M., Bijnsdorp, S., Huygen, A., Rhomberg, W., Berger, A. (2017). Social Innovation in energy supply: Case study results. SI-DRIVE - Social Innovation: Driving Force of Social Change (Deliverable N° 7.3).
- RES2020 project (n.d.). RES Future Policies Recommendations. RES2020 - Monitoring and Evaluation of the RES directives implementation in EU27 and policy recommendations for 2020 (Deliverable 5.1).
- Standal, K., Westskog, H., van Kraalingen, I., Paolucci, L., Reljic, M., Talevi, M., Chubyk, A. (2018). Synthesis report on the case study "From Consumer to Prosumer". ENABLE.EU – Enabling the Energy Union (Deliverable N° 4.3).

7.3 Online Resources

- Boletín Oficial Del Estado (October 2018) Retrieved from: <https://www.boe.es/boe/dias/2018/10/06/pdfs/BOE-A-2018-13593.pdf>
- Delivering a New Deal for Energy Consumers (July 2015) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Retrieved from: https://ec.europa.eu/energy/sites/ener/files/publication/Energy_consumers_en.pdf
- Clean Energy for all Europeans – unlocking Europe’s growth potential (November 2016). Retrieved from: http://europa.eu/rapid/press-release_IP-16-4009_en.htm
- Community Energy (March 2013) Retrieved from <https://www.gov.uk/guidance/community-energy>
- International Energy Agency. Policies and Measures Database (2018) Retrieved from: <https://www.iea.org/policiesandmeasures/renewableenergy/>
- Italy’s National Energy Strategy (2017) Retrieved from: https://www.mise.gov.it/images/stories/documenti/BROCHURE_ENG_SEN.PDF
- Legal Sources on Renewable Energy (2017) Retrieved from: RES Legal <http://www.res-legal.eu/home/>

Local Government Commission, Community Choice Aggregation Fact Sheet, State of California Energy Commission and U.S. Department of Energy, Sacramento, CA, 2016 Retrieved from <https://www.lgc.org>.

National Archives, UK Legislation (January 2018) Retrieved from: <https://www.legislation.gov.uk>

Stocker L (June 2017) 'Peer-to-Peer Trading, Renewables and Blockchain: What's inside Ofgem's 'Regulatory Sandbox' Retrieved from: <https://smartgrids.no/peer-to-peer-trading-renewables-and-blockchain-whats-inside-ofgems-regulatory-sandbox/>

Roadmap for the Energy Union (February 2015) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank - A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy, COM(2015)80 final. Retrieved from: https://eur-lex.europa.eu/resource.html?uri=cellar:1bd46c90-bdd4-11e4-bbe1-01aa75ed71a1.0001.03/DOC_2&format=PDF

ANNEX 1 Legal and policy document references

Laws relevant for individual and collective RES Prosumers

Countries	Legal documents relevant for individual and collective RES Prosumers
European Union	<p>Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, OJ L 140, 5.6.2009, p. 16, as amended.</p> <p>Directive 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast), EU OJ L 328, 21.12.2018, p. 82 – 209.</p> <p>Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, OJ L 315, 14.11.2012, p. 1, as amended.</p> <p>Directive 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency, OJ L 328, 21.12.2018, p. 210–230.</p> <p>Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and</p>

	<p>Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council (Text with EEA relevance), OJ L 328, 21.12.2018, p. 1–77.</p> <p><u>EU legislative proposals, on which political agreement was reached but final adoption and publication is still pending</u></p> <p>Proposal for a Directive of the European Parliament and of the Council on common rules for the internal market in electricity (recast), Brussels, 23.2.2017, COM(2016) 864 final/2 - 2016/0380 (COD) (last available version: 'Proposal for a Directive of the European Parliament and of the Council on common rules for the internal market in electricity (recast) – analysis of the final compromise text with a view to agreement', Council of the European Union, 5076/19, Interinstitutional File: 2016/0380 (COD), Brussels 11 January 2019).</p> <p>Proposal for a Regulation of the European Parliament and of the Council on the internal market for electricity (recast), Brussels, 23.2.2017, COM(2016) 861 final/2 - 2016/0379 (COD) (last available version: 'Proposal for a Regulation of the European Parliament and of the Council on the internal market for electricity (recast) – analysis of the final compromise text with a view to agreement', 11 January 2019, Council of the European Union, 5070/19, Interinstitutional File 2016/0379)).</p> <p>Proposal for a Regulation of the European Parliament and of the Council establishing a European Union Agency for the Cooperation of Energy Regulators (recast), Brussels, 23.2.2017, COM(2016)0863 final/2 - 2016/0378 (COD).</p>
<p>Belgium/ Flanders</p>	<p>Loi relative à l'organisation du marché de l'électricité / Wet van 29 april 1999 betreffende de organisatie van de elektriciteitsmarkt – Law of 29 April 1999 on the Organisation of the Electricity Market</p> <p>Arrêté du 30 novembre 2006 - Arrêté du Gouvernement wallon relatif à la promotion de l'électricité produite au moyen de sources d'énergie renouvelables ou de cogénération (Decree of the Walloon Government of 30 November 2006 on Support for Renewable Energy and Combined Heat and Power Generation)</p> <p>AGW-OSP du 30 mars 2006 – Arrêté du Gouvernement wallon relatif aux obligations de service public dans le marché de l'électricité (Decree of the Walloon Government of 30 March 2006 on Public Service Obligations in the Electricity Sector)</p>

	<p>Décret du 23 janvier 2014 (Décret du 23 janvier 2014 modifiant le décret wallon du 12 avril 2001 relatif à l'organisation du marché régional de l'électricité - Decree of 23 January 2014 modifying the decree of 12 April 2001 on the Organisation of the Regional Electricity Market)</p> <p>Arrêté du 2 décembre 2004 (Arrêté du 2 décembre 2004 du Gouvernement Wallon portant exécution du décret du 11 mars 2004 relatif aux incitants destinés à favoriser la protection de l'environnement et l'utilisation durable de l'énergie - Decree of 2 December 2004 of the Walloon Government implementing the decree of 11 March 2004 on the incentives aiming at the promotion of environmental protection and sustainable use of energy)</p> <p>Décret du 11 mars 2004 (Décret du 11 mars 2004 relatif aux incitants destinés à favoriser la protection de l'environnement et l'utilisation durable de l'énergie - Decree of 11 March 2004 regarding the incentives aiming at the promotion of environmental protection and sustainable use of energy)</p> <p>Arrêté du 3 mars 2011 (Arrêté du 3 mars 2011 du Gouvernement wallon approuvant le règlement technique pour la gestion des réseaux de distribution d'électricité en Région wallonne et l'accès à ceux-ci - Decree of 3 March 2011 of the Walloon Government approving the technical regulations for the administration of and the access to the distribution grids in the Walloon Region.)</p>
Croatia	<p>Zakon o energiji (Energy Act)</p> <p>Tariff System for RES-E (Tarifni sustav za proizvodnju električne energije iz obnovljivih izvora energije i kogeneracije - The Tariff System for Electricity Production from Renewable Energy Sources and CHP)</p> <p>Qualified Producer Rulebook (Pravilnik o stjecanju statusa povlaštenog proizvođača električne energije - Rulebook on the Award of the Status of Qualified Electricity Producer)</p> <p>RES Fee Decree (Uredba o naknadi za poticanje proizvodnje električne energije iz obnovljivih izvora energije i kogeneracije - Decree on the Fees to Encourage the Production of Electricity from Renewable Energy Sources and CHP)</p> <p>Zakon o tržištu električne energije (Electricity Market Act)</p>
France	<p>Loi n°2000-108 du 10 février 2000 relative à la modernisation et au</p>

	<p>développement du service public de l'électricité" (French Act No. 2000-108 on the Modernisation and Development of the Public Electricity Supply)</p> <p>Loi n°2015-992 (Loi n° 2015-992 du 17 août 2015 relative à la transition énergétique pour la croissance verte - Act on the energy transition for green growth)</p> <p>Code de l'Énergie (Energy Code), includes:</p> <p>Arrêté du 17 juin 2014 vent (Arrêté du 17 juin 2014 fixant les conditions d'achat de l'électricité produite par les installations utilisant l'énergie mécanique du vent implantées à terre– Order on the eligibility requirements for onshore wind power installations)</p> <p>Arrêté du 4 mars 2011 soleil (Arrêté du 4 mars 2011 fixant les conditions d'achat de l'électricité produite par les installations utilisant l'énergie radiative du soleil – Order on the eligibility requirements for solar energy systems)</p> <p>Arrêté du 25 avril 2014 (Arrêté du 25 avril 2014 portant diverses dispositions relatives aux installations utilisant l'énergie radiative du soleil telles que visées au 3° de l'article 2 du décret n° 2000-1196 du 6 décembre 2000 - Order of 25 April 2014 introducing various provisions regarding solar energy plants)</p> <p>Arrêté du 23 juillet 2010 géothermie (Arrêté du 23 juillet 2010 fixant les conditions d'achat de l'électricité produite par les installations utilisant l'énergie des nappes aquifères ou des roches souterraines – Order on the eligibility requirements for geothermal energy plants)</p> <p>Arrêté du 19 mai 2011 biogaz (Arrêté du 19 mai 2011 fixant les conditions d'achat de l'électricité produite par les installations qui valorisent le biogaz – Order on the eligibility requirements for biogas plants)</p> <p>Arrêté du 1er mars 2007 hydro (Arrêté du 1er mars 2007 fixant les conditions d'achat de l'électricité produite par les installations utilisant l'énergie hydraulique des lacs, cours d'eau et mers – Order on the eligibility requirements for hydro-electric power stations)</p> <p>Arrêté du 27 janvier 2011 biomasse (Arrêté du 27 janvier 2011 fixant les conditions d'achat de l'électricité produite par les installations utilisant à titre principal l'énergie dégagée par la combustion de matières non fossiles d'origine végétale ou animale – Order on the eligibility requirements for biomass plants)</p> <p>Code de l'Énergie, Livre III, Titre Ier, Chapitre V: L'autoconsommation</p>
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	<p>(Article L315-1 to Article L314-8) (Energy Code: Self-consumption law)</p> <p><i>Loi n° 2017-227 du 24 février 2017 ratifiant les ordonnances n° 2016-1019 du 27 juillet 2016 relative à l'autoconsommation d'électricité et n° 2016-1059 du 3 août 2016 relative à la production d'électricité à partir d'énergies renouvelables et visant à adapter certaines dispositions relatives aux réseaux d'électricité et de gaz et aux énergies renouvelables. (Law rectifies the Order n° 2016-2019 and Order 2016-1059)</i></p>
Germany	<p>Energiewirtschaftsgesetz [EnWG]: Law on Electricity and Gas Supply</p> <p>Erneuerbare-Energien-Gesetz [EEG 2017]: Law for the expansion of renewable energies (translated also as: Renewable Energy Sources Act)</p> <p>Stromsteuergesetz [StromStG]: Electricity Tax Act</p> <p>Energiedienstleistungsgesetz [EDL-G]: Law on energy services and other energy efficiency measures</p> <p>Energiesteuergesetz [EnergieStG]: Energy Tax Act</p> <p>Energiewirtschaftsgesetz [EnWG]: Law on Electricity and Gas Supply</p> <p>Gesetz betreffend die Erwerbs- und Wirtschaftsgenossenschaften [GenG]: Law on the labour and economic cooperatives</p> <p>Kraft-Wärme-Kopplungsgesetz [KWKG]: Law for the preservation, modernization and expansion of combined heat and power</p> <p>Energieeinsparverordnung [EnEV]: Ordinance on energy-saving thermal insulation and energy-saving plant technology in buildings</p> <p>Stromnetzzugangsverordnung [StromNZV]: Regulation on electricity feed-in to and consumption from electricity supply grids</p> <p>Leitfaden zur Eigenversorgung: Guideline for self-supply</p>
Italy	<p>DM 06/07/12 (Decreto Ministeriale 6 luglio 2012. Incentivi per energia da fonti rinnovabili elettriche non fotovoltaiche - Ministerial Decree 6 July 2012. Incentives for electric renewable energy sources apart from PV).</p> <p>L 99/09 (Legge 23 luglio 2009, n. 99. Disposizioni per lo sviluppo e l'internazionalizzazione delle imprese, nonché in materia di energia – Act</p>

on the Development of the Business and Energy Sectors)

L 244/07 (Legge 24 Dicembre 2007, n. 244. Disposizioni per la formazione del bilancio annuale e pluriennale dello Stato. Legge finanziaria 2008 – **Budget Act of 2008**)

DL 239/04 (Legge 23 agosto 2004, n. 239. Riordino del settore energetico, nonchè delega al Governo per il riassetto delle disposizioni vigenti in materia di energia - **Act on the Reorganisation of the Energy Sector**)

L 79/99 (Decreto Legislativo 16 marzo 1999, n. 79. Attuazione della direttiva 96/92/CE recante norme comuni per il mercato interno dell'energia elettrica, „Decreto Bersani” – **Decree for the Regulation of the Electricity Market**)

DL 387/03 (Decreto Legislativo 29 dicembre 2003, n. 387. Attuazione della direttiva 2001/77/CE relativa alla promozione dell'energia elettrica prodotta da fonti energetiche rinnovabili nel mercato interno dell'elettricità – **Decree for the Promotion of Renewable Energy**)

DPR 633/72 (Decreto del Presidente della Repubblica 26 ottobre 1972 n. 633. Istituzione e disciplina dell'imposta sul valore aggiunto – **Act on the Value-Added Tax**)

DM 18/12/08 (Decreto 18 dicembre 2008. Incentivazione della produzione di energia elettrica da fonti rinnovabili. “Decreto Rinnovabili” – **Decree on Renewable Energy**)

AEEG 34/05 (Delibera n. 34/05. Modalità e condizioni economiche per il ritiro dell'energia elettrica – **Conditions on Electricity Supply to the Grid**)

AEEG 280/07 (Delibera n. 280/07. Modalità e condizioni tecnico-economiche per il ritiro dell'energia elettrica – **Conditions on Electricity Imports to the Grid**)

ARG/elt 199/11 (Delibera n. 199/11. Testo integrato delle disposizioni dell'Autorità per l'energia elettrica e il gas per l'erogazione dei servizi di trasmissione, distribuzione e misura dell'energia elettrica per il periodo di regolazione 2012-2015 e disposizioni in materia di condizioni economiche per l'erogazione del servizio di connessione – **Resolution on the Transmission and Distribution of Electricity**)

570/2012/R/efr. (Deliberazione 570 2012. Testo integrato delle modalità e delle condizioni tecnico-economiche per lo scambio sul posto. “TISP” – **Conditions for Net Metering**)

DM 11/04/08 (Criteri e modalità per incentivare la produzione di energia

	<p>elettrica da fonte solare mediante cicli termodinamici – criteria to incentivise production of electric energy from solar sources through thermodynamic cycles)</p> <p>Resolution 165/2013/R/eel (recognizes other private grids, such as historical cooperatives)</p>
<p>Portugal</p>	<p>DL 225/2007 (Decreto-Lei 225/2007 de 31 de Maio) sets measures related with renewable energies as provided in the National Energy Strategy.</p> <p>Ordinance DGEG of 26 December 2013 (Despacho DGEG de 26 de Dezembro de 2013) sets the annual reduction rate and the electricity tariff applicable to microproduction units in 2014.</p> <p>Ordinance DGEG of 26 December 2013 (Despacho DGEG de 26 de Dezembro de 2013) sets the annual reduction rate and the electricity tariff applicable to miniproduction units in 2014.</p> <p>Ordinance 286/2011 (Portaria n.º 286/2011 de 31 de Outubro) sets the coefficient Z for the calculation of the FiT for wind offshore projects.</p> <p>DL 153/2014 (Decreto-Lei 153/2014 de 20 de Outubro - Decree-Law No. 153/2014 of 20 October 2014 - Self-consumption law)</p> <p>Portaria 14/2015 (Ordinance n.º 14/2015 de 23 de Janeiro) sets the legal regime applicable to small production (UPP) and self-consumption (UPAC) units.)</p> <p>Portaria 15/2015 (Ordinance n.º 15/2015 de 23 de Janeiro) sets the reference tariff for small production (UPP) and self-consumption (UPAC) units, foreseen in DL 153/2014.)</p>
<p>Spain</p>	<p>Ley 24/2013 (Ley del Sector Eléctrico – Law on the Electricity Sector)</p> <p>RD 1955/2000 (Real Decreto 1955/2000, de 1 de diciembre, por el que se regulan las actividades de transporte, distribución, comercialización, suministro y procedimientos de autorización de instalaciones de energía eléctrica – Royal Decree on the Distribution and Transmission of Electricity)</p> <p>RD 2017/1997 (Real Decreto 2017/1997, de 26 de diciembre, por el que se organiza y regula el procedimiento de liquidación de los costes de transporte, distribución y comercialización a tarifa, de los costes permanentes del sistema y de los costes de diversificación y seguridad de abastecimiento - Royal Decree No. 2017/1997 of 26th December 1997)</p>

	<p>Organising and Regulating the Procedures for the Liquidation of Costs related to Transport, Distribution and Commercialisation, of Permanent System Costs, and of Costs related to Diversification and Security of Supply.)</p> <p>RDL 6/2009 (Real Decreto-ley 6/2009, de 30 de abril, por el que se adoptan determinadas medidas en el sector energético y se aprueba el bono social - Royal legislative decree 6/2009 of 30 April 2009, approving specific measures in the energy sector and the social bonus)</p> <p>RDL 2/2013 (Real Decreto-ley 2/2013, de 1 de febrero, de medidas urgentes en el sistema eléctrico y en el sector financiero. - Royal decree-law 2/2013 of 1st of February, for urgent measures in the electric system and in the financial sector)</p> <p>RDL 9/2013 (Real Decreto-ley 9/2013, de 12 de julio, por el que se adoptan medidas urgentes para garantizar la estabilidad financiera del sistema eléctrico. - Royal Decree-law 9/2013 of 12 July, adopting urgent measures to ensure the financial stability of the electricity system.)</p> <p>RD 413/2014 (Real Decreto 413/2014, de 6 de junio, por el que se regula la actividad de producción de energía eléctrica a partir de fuentes de energía renovables, cogeneración y residuos. - Royal Decree 413/2014 of 6 June, regulating the activity of electricity production from renewable energy, CHP and waste).</p> <p>RD 900/2015 (Real Decreto 900/2015, de 9 de octubre, por el que se regulan las condiciones administrativas, técnicas y económicas de las modalidades de suministro de energía eléctrica con autoconsumo y de producción con autoconsumo. - Royal Decree 900/2015 of 9 October, regulating the administrative, technical and economic conditions for the supply and production of electricity under self-consumption).</p> <p>Ley 27/1999, de 16 de julio de Cooperativas, State Gazette BOE-A-1999-15681 (Law on cooperatives)</p> <p>RD 15/2018 (Real Decreto-ley 15/2018, de 5 de octubre, de medidas urgentes para la transición energética y la protección de los consumidores. Royal Decree-Law of 15/2015, 5th of October, with urgent measures for the energy transition and the protection of consumers.)</p>
Netherlands	<p>Electricity Act (Elektriciteitswet 1998 – general law on electricity)</p> <p>Wet IB 2001 (Wet van 11 mei 2000 tot vaststelling van de Wet inkomstenbelasting 2001 – Income Tax Act)</p>

	<p>WBM (Wet Belastingen op Milieugrondslag – Act on the Environmental Protection Tax)</p> <p>RGO (Regeling garanties van oorsprong voor duurzame elektriciteit – Regulation on Guarantees of Origin for Renewable Electricity)</p> <p>SDE + (Besluit stimulering duurzame energieproductie – Renewable Energy Production Incentive Scheme)</p> <p>RAC 2014 (Regeling aanwijzing categorieën duurzame energieproductie 2014 – Regulation designating)</p>
<p>United Kingdom/Great Britain</p>	<p>EA 1989 (The Electricity Act 1989, c.29)</p> <p>FA 2000 (The Finance Act 2000, c.17)</p> <p>Order 2001 The Electricity (Class Exemptions from the Requirement for a Licence) (sets out licence exemptions)</p> <p>EnA 2008 (The Energy Act 2008, c. 32) (sections 41.43, legal basis to set up a feed-in-tariff for small scale renewables electricity generation)</p> <p>ROO 2009 (The Renewables Obligation Order 2009, No. 785)</p> <p>Green Energy (Definition and Promotion) Act 2009, c.19)</p> <p>FTO 2010 No.678 The Feed-in Tariffs (Specified Maximum Capacity and Functions) Order 2010</p> <p>FTO 2012 (The Feed-in Tariffs Order 2012, No. 2782) Order 2012</p> <p>EnA 2013 (The Energy Act 2013, c. 32)</p> <p>RO Closure Order 2014 (The Renewables Obligation Closure Order 2014, No. 2388)</p> <p>EMR General Regulations 2014 (The Electricity Market Reform (General) Regulations 2014, No. 2013)</p> <p>CfD Counterparty Designation Order 2014 (The Contracts for Difference (Counterparty Designation) Order 2014, No. 1709)</p> <p>CfD Standard Terms and Conditions (CfD Standard Terms and Conditions, Version 1)</p>

	<p>FTO 2015 (The Feed-in Tariffs (Amendment) No. 3 Order 2015)</p> <p>EnA 2016 (The Energy Act 2016, c 20)</p> <p>CfD Definition of Eligible Generator Regulations 2014 (The Contracts for Difference (Definition of Eligible Generator) Regulations 2014, No. 2010)</p> <p>ROO 2015 (The Renewables Obligation Order 2015, No. 1947)</p>
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ANNEX 2 Questionnaire Template



Dear Madam/Sir,

I would like to ask for your help in collecting information concerning specific aspects of your country's national regulatory framework related to renewable self-consumers (prosumers) and local energy communities.

This research is part of the EU-funded project entitled 'PROSumers for the Energy Union: mainstreaming participation of citizens in the energy transition (PROSEU)'. The PROSEU project aims to promote the renewables self-consumption (renewables prosumerism) and, in so doing, safeguard citizen participation, inclusiveness and transparency in the Energy Union.

PROSEU is conducting i.e. a study to assess existing Member State-specific regulatory and policy frameworks of renewable prosumers (challenges, opportunities, incentives of regulations and policies). This questionnaire has been prepared in order to collect some information for this study.

The questionnaire focuses on energy communities as this is a particular angle we want to address in the study. However, we consider that in many cases it is necessary to look at both individual renewable self-consumers and energy communities.

We broadly define prosumers as those energy users who both consume and produce renewable energy.

We decided to use in the questionnaire the following terms as in the 2016 proposal by the European Commission for a revised electricity Directive (COM (2016) 864 final/2) and in the text discussed and agreed in trilogue negotiations of a revised Renewable Energy Directive (COM (2016) 767 final/2 as amended in trilogue):

- **Active customer:** a customer or a group of jointly acting customers who consume, store or sell electricity generated on their premises, including through aggregators, or participate in demand response or energy efficiency schemes provided that these activities do not constitute their primary commercial or professional activity;
- **Renewable self-consumer:** a final customer operating within its premises located within confined boundaries or where allowed by Member States, on other premises, who generates renewable electricity for its own consumption, and may store and sell self-generated renewable electricity, provided that, for non-household renewable self-consumers, those activities do not constitute their primary commercial or professional activity;
- **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;
- **Renewable energy community:** 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.
- **Dynamic electricity price contract:** an electricity supply contract between a supplier and a final customer that reflects the price at the spot market, including at the day ahead market at intervals at least equal to the market settlement frequency;
- **Aggregator:** a market participant that combines multiple customer loads or generated electricity for sale, for purchase or auction in any organised energy market;
- **Demand response:** the change of electricity load by final customers from their normal or current consumption patterns in response to market signals, including time-variable electricity prices or incentive payments, or in response to acceptance of the final customer's bid, alone or through aggregation, to sell demand reduction or

increase at a price in organised markets as defined in Commission Implementing Regulation (EU) N°1348/2014)

Questionnaire – assessment of regulatory and policy frameworks of renewable prosumers (challenges, opportunities, incentives of regulations and policies)

When responding to below questions, could you indicate, whenever possible, a relevant provision of law?

Definitions

1. Does your national regulatory framework guarantee a **consumer's right** to generate electricity for their own use?
 - a. If yes, does your national regulatory framework allow consumers to **consume** self-generated electricity and **sell** any surplus of self-generated electricity into the grid⁵⁶?
 - b. Does your national regulatory framework impose any **restrictions on the size of renewable energy systems installed for self-generation⁵⁷ or limit the amount of electricity that can be put** into the grid?
 - c. Is surplus self-generated energy that is put into the grid **remunerated**?
 - d. Does your national regulatory framework allow consumers to **store** electricity? If so, could you provide more information?

2. Does your national regulatory framework **provide a definition of a renewable self-consumer or prosumer**?
 - a. If so, could you provide the definition(s) along with the relevant statutory and/or regulatory citations?

3. Is it possible under the legal system of your country to **set up energy communities/ renewable energy communities**?
 - a. If so, who/what types of actors can become their members?
 - b. Can individuals living in the same multi-apartment building or in the same neighbourhood establish and run a separate energy community?
 - c. What legal forms may energy communities have in your country?

⁵⁶ Incl. through power purchase agreements and peer-to-peer trading arrangements.

⁵⁷ E.g. sized to load requirements.

4. Are there **definitions (legal or regulatory) of a local energy community and a renewable energy community** in your country?
 - a. If yes, could you describe the main elements of these definitions and indicate the relevant legal provisions of your national laws?

5. Is there a specific legislation in your country **enabling and providing specific rights to (renewable) energy communities**?
 - a. If so, please, list it and explain shortly.
 - b. Does the legislation allows energy communities to **generate, consume, store and sell** (renewable) energy?
 - c. Does the legislation entitles energy communities to **share** self-produced renewable energy within the community?

6. Does your national regulatory framework treat or otherwise classify renewable self-consumes and/or (renewable) energy communities **as energy suppliers**?
 - a. If so, please provide more details (circumstances, consequences).

7. Does your national regulatory framework ensure that renewable self-consumers as well as members of (renewable) energy communities maintain their **consumer rights**⁵⁸?

Energy markets

8. Are renewable self-consumers and (renewable) energy communities allowed to **participate in electricity markets** (in particular, the wholesale markets⁵⁹) directly or through aggregators?
 - a. If so, could you describe the (main) **requirements** that they have to comply with to be allowed **to participate**?
 - b. If they are not allowed, could you explain why?

9. Are **dynamic electricity price contracts** (also called 'time of use contracts') available for renewable self-consumers (residential self-consumers and small and medium size

⁵⁸ In some jurisdictions, energy consumers that produce energy are no longer eligible to be covered by the EU and/or national consumer protection rules.

⁵⁹ We are mainly interested in the day ahead and the intraday markets; however, information on the balancing markets and ancillary services would be appreciated too.

enterprises (SMEs) in your country? Are the same type of contracts available for (renewable) energy communities?

- a. If so, could you describe main characteristics, including conditions for having access to dynamic electricity price contracts?

10. What are **permitting requirements** (cost⁶⁰, administrative process, other relevant legal requirements) for renewable energy communities to get access to the grid?

- a. Are they different than for renewable self-consumers? If yes, please explain how they are different.

11. Does your national law provide for setting up **single administrative contact points** for permit granting processes for renewable self-consumers and (renewable) energy communities?

Incentives

12. What specific legislation, policies and support measures (i.e. finance, administrative, etc) are in place in your country (at country national and, where relevant, regional level) to support and incentivise creation and operation of (renewable) energy communities? Are they different from these supporting individual renewable self-consumers?

Barriers

13. What are the main legislative, regulatory and political barriers for (renewable) energy communities to start and carry out an activity of producing and/or selling electricity from renewable sources? (e.g. of barriers: caps on net metering (incl. restrictions on capacity or load); discriminatory charges, taxes and fees; burdensome permitting requirements; lack of public support; no legal recognition of energy communities; tax law)

Legislative changes

14. Have there been any new legislative and policy initiatives (ongoing or adopted) on/ relevant for self-consumers and (renewable) energy communities since January 2017, which have not been covered under previous questions?

⁶⁰ In some countries cost may be used by DSOs to limit the access to the grid.

- a. If not, are any planned?

For more information about the PROSEU Project, contact info@proseu.eu or go to www.proseu.eu (from Monday 2 July 2018).



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