

Renewable Energy Communities: Paradigmatic Example of a New Decentralised Governance of the Energy Market¹

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This paper analyses renewable energy communities (hereinafter RECs) as introduced and regulated by Directive 2018/2001/EU, highlighting their pivotal role in the liberalisation and decarbonisation of the European energy market. RECs represent a point of intersection between these two processes, fostering a more open and decentralised market while promoting renewable energy and facilitating the energy transition. Their impact is multi-faceted: they decentralise energy production, encourage local generation, reduce end consumers' dependence on large energy companies, and lower energy costs for members. By advancing the use of renewable energy, RECs contribute to the energy transition, decarbonisation of European industry, and the Union's climate objectives. Citizens play a fundamental role in this transformation, evolving from passive consumers to active market participants, reshaping the market's structure. However, RECs face challenges, particularly regulatory and bureaucratic barriers in several European countries. To overcome these obstacles, the article calls for a more structured approach at the national level. This would involve reforms to support their expansion, ensuring that RECs can achieve their full potential as drivers of market decentralisation, citizen engagement, and climate action.

Keywords: Renewable energy communities; Energy market; Liberalisation; Decarbonisation; Renewable energy sources; Prosumer; Citizens.

Introduction

The promotion of sustainable energy production and consumption is central to the EU's climate policies, aiming for an ecological transition that will make the European Union the first continent with net-zero greenhouse gas emissions by 2050. This objective, adopted by the EU through the European Green Deal²,

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²Ref. COM (2019) 640 final, Brussels, 11 December 2019. Alongside the final target set for 2050, a series of interim targets have been established for 2030: a) a 55% reduction in greenhouse gas emissions compared to 1990 levels; b) an increase in the share of renewable energy sources to 32%, which, as noted, has been raised to "at least 40%" under the Fit for 55 package and 42.5% under the

aligns with commitments previously undertaken by the European Union in the 2015 Paris Agreement, which seeks to keep global temperature rise well below 2°C above pre-industrial levels, ideally limiting it to 1.5°C³, and with the 2030 Agenda, which includes Goal 7 to ensure access for all to affordable, reliable, sustainable, and modern energy systems.

In this context, where the EU's energy market liberalisation, launched in 1996 with the first energy package, has inevitably intertwined with the decarbonisation of European industry and the energy transition – currently the primary objective of EU policy – renewable energy communities stand out as a major innovation in Europe's energy landscape. Introduced and regulated under the fourth energy package, they occupy a unique position between the two aforementioned trajectories, as they have the potential to impact both market liberalisation and structure, as well as the shift towards sustainable energy production, while enhancing the active role of end consumers.

The aim of this paper is to analyse the institution of renewable energy communities, starting with the social and political context in which they operate and the legislative framework provided at the EU level. Building on this foundation, the article seeks to outline the impacts of these instruments within the current European energy landscape, with particular attention to their implications for citizens and public entities, which may be involved in various capacities.

This paper is structured as follows:

Section 2 provides a preliminary overview of the paths of liberalisation and decarbonisation of the European energy market through the five energy packages, illustrating how liberalisation and decarbonisation measures have complemented each other and may find a convergence point in renewable energy communities.

Section 3 analyses the EU regulation of collective self-consumption and renewable energy communities, which serves as a framework for subsequent detailed implementation at the national level.

Section 4 seeks to highlight the impact of renewable energy communities on the European energy market, with a particular focus on the active role of end consumers and the decentralisation of the energy market.

Finally, Section 5 explores the future prospects for renewable energy communities, identifying key areas for intervention to ensure their effective dissemination.

Red III Directive (2023/2413/EU); and c) an improvement in energy efficiency by 32.5%, increased to 36-39% also under the Fit for 55 package.

³The Paris Climate Agreement (Paris Outcome) is an implementing agreement of the 1992 Framework Convention, consisting of two separate documents with distinct legal natures and effects, yet whose provisions are mutually complementary: the Decision and the Paris Agreement, the latter being an annex to the Decision. Article 2 of the Agreement, in line with the “dual target” mechanism introduced at COP 16 in Cancún, establishes the dual objective of keeping the global average temperature increase well below 2°C above pre-industrial levels, while also striving to limit this increase to 1.5°C. On the Paris Agreement, see, among others, Bodansky (2016) and Klein, Carazo, Doelle, Bulmer & Higham (2017).

The Liberalisation and Decarbonisation of the European Energy Market

The liberalisation and decarbonisation of the energy market in the European Union are two processes which, despite having different objectives, can complement and reinforce each other. The creation of a more open, competitive, and flexible energy market can serve as a precondition for fostering sectoral innovation and the transition towards more sustainable energy sources. It is with these two objectives in mind that the Union has intervened over the years with five legislative packages, initially focused on liberalising energy markets within Member States to achieve a single energy market, and later aimed at decarbonising the market to reach the ultimate goal of making Europe the first continent with net-zero CO₂ emissions by 2050.

The five energy packages represent a series of legislative initiatives developed over a period from 1996 to the present, reflecting the evolution of the Union's energy policy from liberalisation and the promotion of competition to the transition towards a sustainable and decarbonised energy market, encompassing security of supply and improved energy efficiency. Each package has thus contributed to creating a more integrated, competitive energy market aligned with the European Union's economic and climate objectives.

Although initially, the energy sector was not included in the 1957 Treaty of Rome establishing the European Economic Community (EEC), from the 1980s onwards, the creation of an internal energy market became one of the priorities of the then European Community (EC). This shift followed the 1986 Single European Act, specifically Article 7A of the EEC Treaty (added by Article 13 of the Single Act, later becoming Article 14 of the EC Treaty, and ultimately Article 26 of the Treaty on the Functioning of the European Union (TFEU)). According to this provision, the establishment of an internal market involves a borderless area ensuring the free movement of goods, persons, services, and capital. Completion of an internal electricity market was deemed essential to achieving this internal market, as electricity was considered a 'good' under the then Article 28 the EC (now Article 34 of TFEU). European case law⁴ has repeatedly confirmed that electricity fell fully within the scope of Article 14 of the EC, meaning that, for electricity as well, the Community's policy and legislative action should be directed towards establishing a unified and uniform market⁵.

Classifying electricity as a "good" was crucial, as this classification underpinned the concept of an internal electricity market and, to a large extent, the internal energy market – a single, borderless market where energy constitutes a freely tradable commodity.

Another relevant aspect is the need for continuity in electricity supply and the availability of different service levels for users, which qualifies various aspects of electricity company services as a 'service'. From this perspective,

⁴See Court of Justice of the European Communities (CJEU) - judgment of 15 July 1964, Case 6/64, *Costa v. Enel*, in *Racc.*, 1964, at 1127 ff.; judgment of 27 April 1994, Case C-393/92, *Comune di Almeno and Others v. NV Energiebedrijf*, in *Racc.*, 1994, at I-1477 ff.; judgment of 23 October 1997, Case C-158/94, *Commission of the European Communities v. Italian Republic*, in *Racc.*, at I-5789 ff.

⁵Similarly, see among others, McGowan (1995) and Pfrang (1999) at 24 ff.

electricity provision is clearly aligned with the residual definition of “service” in the then Article 50 of the EC (now Article 57 of TFEU), as well as with the category of services of general economic interest delineated in the then Article 86(2) of the EC (now Article 106 of TFEU)⁶.

Until the 1990s, most energy markets in European Community countries were dominated by state monopolies and characterised by a substantial lack of competition. Under this model, where large public companies-controlled electricity production, distribution, and sale, service continuity was ensured, but it did not always guarantee efficiency, consumer protection, or innovation. The lack of application of competition rules to the sector in question was largely justified by the exception in Article 86(2) of the EC, which exempted companies managing services of general economic interest from the Treaty’s provisions, especially competition rules, whenever and to the extent that applying such rules would hinder the fulfilment of their specific mission. However, following the adoption of the Single European Act and subsequently the Maastricht Treaty, a notable push from the Community institutions, particularly the Commission, sought to introduce at least partial elements of competitiveness and market forces into the electricity sector. This move aligned with the traditional Community objective of maximising competition in all areas.

As a result, various legislative interventions aimed at opening up the energy sector to the market have followed⁷. According to the Commission’s repeated guidance⁸, the liberalisation process of the electricity sector within the European Community was to proceed progressively to introduce at least partial competitiveness and market elements into the electricity sector and to improve efficiency and ensure a more transparent and fair energy service for consumers⁹.

The true liberalisation process was preceded by several Council directives on price transparency and tariff structures (Directive 90/377/EEC) and the international transit of electricity across major high-voltage transmission networks (Directive 90/547/EEC)¹⁰, which established a common regulatory framework¹¹ for electricity aimed at creating a unified and competitive market. Additionally, the Council directive on procurement in the so-called “excluded sectors” (Directive 90/531/EEC) extended the Community’s procurement regime to the energy sector – as well as to water, transport, and telecommunications – to remove barriers to market entry in this public utility sector.

With these foundations, the liberalisation process formally began with the first energy package, consisting of Directive 96/92/EC for the electricity market

⁶See Corapi (1995) at 294.

⁷On the energy sector in Europe, see Roggenkamp, Redgwell, Rønne & Del Guayo (eds.) (2016).

⁸See EEC Commission Document, 1 June 1990, *The Internal Energy Market – First Interim Report* (COM 90/124 final), also published in *Rass. giur. en. elettr.*, 1990, at 862 ff., and EEC Commission Document, 2 July 1993, *Second Report on the Progress of the Internal Energy Market* (COM 93/261 final), also published in *Rass. giur. en. elettr.*, 1993, at 1048 ff.

⁹On the liberalisation process and competitive energy markets, see Cameron (2007) and Kalus (2013) at 289 ff.

¹⁰Similarly to the provisions established for the electricity sector, Directive 91/296/EEC regulated the transit of natural gas over major networks.

¹¹See Colavecchio (2000) at 52 ff.

and Directive 98/30/EC for the natural gas market¹². These directives were not solely concerned with opening the target markets to competition but sought to outline and establish a comprehensive and exhaustive framework of common rules within the then European Community. The provisions within the directives addressed not only market access procedures and the fundamental criteria for market liberalisation but also the overall regulation of the European market¹³.

In both sectors, the first energy package initiated an initial, partial, and progressive liberalisation targeting “eligible customers”, or those economic entities with consumption above a certain threshold¹⁴, scheduled for gradual reduction to progressively broaden the pool of participants in the free market, who gained the right to freely choose their supplier.

As for network access¹⁵, the first energy package introduced, alongside the *single buyer model* (SB), *third-party access* (TPA), thereby opening up the possibility for suppliers, producers, and consumers to use energy transport and distribution infrastructure managed by other companies to supply, purchase, or sell energy. TPA included two variants: *negotiated access* and *regulated access*. In the former, producers (and, where permitted by Member States, electricity supply companies) and eligible customers were allowed to negotiate with network operators for access to conclude supply contracts on the basis of voluntary commercial agreements. Conversely, regulated access imposed a genuine duty to contract upon the network operator, with eligible customers having a corresponding right to access at regulated prices. In the negotiated model, the network operator was obliged to negotiate, with any failure to do so potentially constituting abuse of a dominant position or a pre-contractual liability; in the regulated model, however, where a binding duty to contract existed, customers were protected by a right to performance of the contractual obligation. The introduction of TPA brought several benefits to the energy market, primarily in three areas: *a*) promoting competition by enabling various

¹²Although in the natural gas sector, the liberalisation process began with Directive 94/22/EC, which aimed to foster competition and enhance supply security. This directive initiated the first liberalisation of production activities by regulating the conditions for granting and exercising authorisations for the exploration, extraction, and production of hydrocarbons, based on objective and non-discriminatory criteria, and according to rules of transparency and publicity.

¹³See Vetrò (2005) at 241-242.

¹⁴With reference to the electricity sector (cf. Art. 19, Directive 96/92/EC), the stipulated threshold was initially set at 40 GWh per annum, which was to be reduced to 20 GWh per annum three years after the directive’s entry into force, and ultimately to 9 GWh per annum six years following its enactment. Moreover, electricity distribution companies supplying other entities with consumption levels sufficient to qualify them as eligible customers were, regardless of annual consumption, consistently classified as “eligible customers”. In the natural gas sector (cf. Art. 18, Directive 98/30/EC), gas plants designated for electricity production were required to be classified as eligible customers regardless of their annual consumption, as well as other final customers whose annual consumption exceeded 25 million cubic metres of gas per location. Member States were also mandated to ensure that the definition of “eligible customers” led to a market opening equal to at least 20% of total annual national gas consumption, rising to 28% after five years and to 33% after ten years.

¹⁵The issue of network access holds a central role in the liberalisation process of the energy market, as it pertains to the rights and opportunities for operators to utilise electricity and gas transmission and distribution infrastructures, which were previously controlled by monopolistic companies, often state-owned or vertically integrated private entities.

operators to utilise the same infrastructure, thus creating a more competitive environment in which consumers could select among suppliers; *b*) increasing efficiency by fostering fair and non-discriminatory network access, which enhanced resource allocation, innovation, and efficiency within the energy sector; and *c*) advancing the energy transition by facilitating the integration of new renewable energy sources, allowing green energy producers to feed electricity into the grid.

To ensure equitable network access, the first energy package also introduced accounting unbundling across various energy sector activities. Vertically integrated companies were thus required to maintain separate accounts for electricity production, transmission, distribution, and gas transport, distribution, and supply, as though these activities were conducted by distinct companies. Although vertical integration was not prohibited in the energy sector, firms were required to adopt separate accounting for each activity to accurately assign costs, revenues, and profits (or losses).

The first energy package was followed in 2003 by a second package of measures, comprising Directives 2003/54/EC and 2003/55/EC on electricity market opening and the establishment of a single European gas market, respectively. These directives completed the liberalisation of both the electricity and natural gas markets, effective from 1 July 2007, when all consumers, including households, would gain the right to choose their supplier freely. As of that date, all final customers were to be deemed eligible.

With reference to network access, regulated access became the sole mode of entry, and both functional and legal unbundling – on top of accounting unbundling – were introduced between network management activities (transmission and distribution in the case of electricity, transport and distribution for gas) and other activities, where the appointed entities operated within vertically integrated enterprises involved in generation or supply.

The second energy package also mandated each Member State to establish an independent regulatory authority to monitor the energy sector, ensuring the promotion of competition, overseeing the application of standards, and guaranteeing fair and non-discriminatory access to the networks for new operators.

The liberalisation process advanced further in 2009 with the third energy package¹⁶, which introduced environmental and climate targets alongside objectives for energy supply security, complementing the sector's market-opening measures. This package bolstered the separation of network management from production and supply activities by introducing three unbundling models: *Ownership Unbundling*, requiring full separation of production/supply ownership from transmission network ownership; the *Independent System Operator (ISO)* model, permitting transmission network ownership to remain with the historical operator while management was transferred to an independent operator; and the *Independent Transmission Operator*

¹⁶The Third Energy Package comprised two directives and three regulations: Directive 2009/72/EC, on common rules for the internal electricity market; Directive 2009/73/EC, on common rules for the internal natural gas market; Regulation 2009/713/EC, establishing the Agency for the Cooperation of Energy Regulators; Regulation 2009/714/EC, concerning conditions for access to the network for cross-border exchanges in electricity; and Regulation 2009/715/EC, concerning conditions for access to the natural gas transmission networks.

(ITO) model, allowing historic operators to retain both ownership and management of networks under strict requirements to ensure operational and managerial independence. It also enhanced the independence of national authorities, both in relation to companies and national governments, and to facilitate European-level coordination, established the Agency for the Cooperation of Energy Regulators (ACER) and the European Network of Transmission System Operators for Electricity (ENTSO-E) and Gas (ENTSO-G).

In the same year, the 20-20-20 Package was approved¹⁷, following a legislative technique widely adopted at the European level¹⁸, setting three 2020 targets: *a*) reducing greenhouse gas emissions by at least 20% compared to 1990 levels; *b*) raising the share of renewable energy to 20% of total EU energy production; and *c*) improving energy efficiency by 20%¹⁹. This package reflects an integrated climate-energy approach that the European Union, recognising since the 2000s the inextricable link between climate change and energy, has embedded within its action and the trajectory of energy transition pursued through the fourth and fifth energy packages²⁰. Since then, European energy market liberalisation and decarbonisation have advanced in unison, complementing one another. Liberalising the energy market has enabled the entry of new operators, including renewable energy producers, which has fostered competition and reduced green energy production costs. Competition has also stimulated investment in new technologies and infrastructure, making renewable energy more accessible and affordable. In other words, renewable energy promotion has also been achieved through competition.

The adoption of the fourth energy package was announced by the European Commission on 30 November 2016, in Communication No. 860, with three main objectives: *a*) prioritising energy efficiency; *b*) achieving global leadership in renewable energy; and *c*) ensuring fair treatment for consumers. This package of measures, known as the *Clean Energy Package*, comprises eight provisions²¹, all aimed at aligning the energy sector with Europe's climate neutrality goals, made

¹⁷See Directive 2009/28/EC.

¹⁸Setting medium-to long-term targets is a legislative technique widely used at the European and international levels, especially in the context of combating climate change. This approach serves to gauge progress towards specific policy goals while simultaneously providing indicators to guide their achievement. See Johnston & Van der Marel (2016) at 176.

¹⁹According to the European Environmental Agency (EEA) report, *Trends and Projections in Europe 2021*, available at www.eea.europa.eu, the European Union has achieved «full achievement – and even overachievement – of Europe's 20-20-20 goals for climate change mitigation, renewable energy deployment and energy efficiency gains».

²⁰On the importance of renewable energy in combating climate change, see Alenza García & Sarasibar Iriarte (2007).

²¹The measures that make up the *Clean Energy Package* are as follows: Regulation 2018/1999/EU on the governance of the Energy Union; Directive 2018/2002/EU on energy efficiency; Directive 2018/2001/EU on the promotion of renewable energy sources (commonly known as Red II); Directive 2018/844/EU on energy performance in buildings; Regulation 2019/943/EU on the internal electricity market; Directive 2019/944/EU on common rules for the internal electricity market; Regulation 2019/941/EU on risk preparedness in the electricity sector; and finally, Regulation 2019/942/EU on the establishment of a European Union Agency for the Cooperation of Energy Regulators. In this regard, see Ludwig (2019) and Nouicer, Kehoe, Nysten, Fouquet, Hancher & Meeus (2020).

binding by the so-called *European Climate Law*²², and implementing sustainable development focused on climate neutrality in line with the commitments made by the European Union under the Paris Agreement²³.

In particular, the fourth package emphasises the decarbonisation of the energy system, setting ambitious targets for renewable energy growth and reducing greenhouse gas emissions. In this regard, Directive 2018/2001/EU (known as RED II) established a 32% target for the share of renewable energy in the EU's gross final energy consumption by 2030²⁴, introduced measures to facilitate consumer participation in renewable energy production, such as collective self-consumption configurations and renewable energy communities²⁵, and set out specific provisions for the promotion of renewables in heating, cooling²⁶, and transport sectors.

On energy efficiency, Directive 2018/2002/EU set a 32.5% reduction in energy consumption by 2030 and promoted energy efficiency measures in buildings, industrial processes, and public services, with particular attention to retrofitting existing buildings.

To achieve these targets, Regulation 2018/1999/EU on Energy Union governance established a common framework for planning, monitoring, and reporting on the progress towards the Union's energy and climate targets, based on *National Energy and Climate Plans* (NECPs) and *Long-term strategies for greenhouse gas reduction*, which each Member State must periodically submit to the European Commission. These plans are underpinned by a dual cooperative logic, involving not only cooperation between Member States and the Commission, who may work jointly to identify the best measures to implement, but also cooperation between Member States²⁷, who may comment on the NECPs of other Member States to ensure no plan hinders or complicates the achievement of common objectives.

Finally, the fourth package, through Regulation 2019/943/EU and Directive 2019/944/EU, intervened in the internal electricity market, promoting a more integrated, competitive market centred on consumer participation, allowing them to produce, store, and sell self-generated electricity, as well as freely choose their energy supplier and benefit from competitive rates.

²²See Regulation 2021/1119/EU.

²³On the energy transition undertaken at the European level and the allocation of competences between the EU and Member States, see Fehling (2021).

²⁴As noted in Monti & Martínez Romera (2020), at 224-225, within the EU context, targets can be set either at the level of individual Member States or at the Union level, and in both cases, they may be "indicative" or "binding". In the case of the 2030 renewable energy targets, unlike the 20-20-20 Package where goals were established for individual Member States, the 2030 targets are binding and set at the Union level. Member States are collectively obliged to ensure that the share of energy from renewable sources in the EU's gross final energy consumption by 2030 reaches at least the level established by the relevant directives.

²⁵See Lowitzsch (2020).

²⁶For insights into the impact of heating and cooling – a sector where the energy transition has progressed more slowly than in electricity – and the importance of decarbonisation policies in this area, see Gerard, Guevara Opinska, Smit & Rademaekers (2022).

²⁷According to Article 2, point 21, of Regulation 2018/1999/EU, «regional cooperation» is defined as «cooperation between two or more Member States engaged in a partnership covering one or more of the five dimensions of the Energy Union».

In 2021, the *Clean Energy Package* was followed by the fifth energy package, known as *Fit for 55%*, as part of the *European Green Deal* framework, outlining a European strategy to transform the EU into a net-zero greenhouse gas economy by 2050 in line with the 2030 Agenda. The package's primary objective is to accelerate decarbonisation by aligning the Union's energy and climate policies to ensure a significant reduction in emissions by 2030, aiming towards climate neutrality by 2050. The name "*Fit for 55%*" refers to the Union's target to reduce net greenhouse gas emissions by 55% by 2030 compared to 1990 levels as part of the strategy towards 2050 climate neutrality.

To this end, the *Fit for 55%* package seeks to expand the use of renewable energy, initially setting a 40% target for the share of renewables in the Union's gross final energy consumption, later increased to 42.5% by Directive 2023/2413/EU (known as RED III²⁸), with a collective commitment from Member States to raise this share to 45%. Additionally, the package introduced a new 11.7% reduction in energy consumption at Union level by 2030 relative to 2020 projections, and stricter measures for the public sector, which must renew at least 3% of the total building surface annually to improve energy efficiency and reduce consumption.

The *Fit for 55%* package continues to strengthen consumer involvement by promoting the active role of citizens and direct participation in renewable energy production and use, while also protecting the most vulnerable consumers through the establishment of a Social Climate Fund²⁹. Furthermore, the package aims to enhance European competitiveness by ensuring that European businesses remain competitive globally, fostering innovation and clean technologies, and protecting European industry from imports from countries with lower environmental standards through the Carbon Border Adjustment Mechanism (CBAM) – a carbon tax applied to imports of carbon-intensive products such as steel, aluminium, cement, and fertilisers. This mechanism, established by Regulation 2023/956/EU, aims to prevent carbon leakage and ensure that imported products are subject to climate standards equivalent to those of the Union.

While the first three energy packages focused on opening the energy market, treating citizens largely as passive consumers of energy produced by large companies, the fourth and fifth packages, as seen with their decarbonisation focus, represent a paradigm shift, actively recognising citizens as a dynamic force in the evolution of the market itself.

²⁸Recently, on the impact of the RED III Directive, see Lehnert & Traum (2024).

²⁹Established under Regulation 2023/955/EU with a maximum allocation of 65 billion euros from 1 January 2026 to 31 December 2032. Member States must contribute at least 25% of the total estimated costs of their plans and may request the transfer of resources to the Fund from cohesion policy programmes managed under a shared management regime, as established by Regulation 2021/1060/EU. Member States may also transfer up to 15% of their allocation to cohesion policy programmes.

Renewable Energy Communities within the European Framework

Among the measures introduced by the fourth energy package that have had a significant impact on the evolution of the energy market – both in terms of liberalisation and decarbonisation – are those relating to collective self-consumption and renewable energy communities³⁰, as outlined in Directive 2018/2001/EU (commonly known as RED II)³¹.

A renewable energy self-consumer is defined as a final customer who, operating on their own premises, produces renewable energy for their own consumption and may store or sell any excess, provided these activities do not constitute their primary commercial or professional activity³². If at least two renewable energy self-consumers are located within the same building or condominium, they may join together and act collectively, generating renewable electricity for their own use, storing it, or selling it, again provided that such activities do not form their main commercial or professional endeavour³³.

With respect to renewable energy self-consumers, whether acting individually or collectively, Member States are required to ensure that final consumers are authorised not only to produce renewable energy for their own self-consumption but also to store or sell any surplus production (including through purchase agreements³⁴), to install and manage storage systems for self-consumption, and to receive remuneration (including through support schemes) for renewable energy they produce and feed back into the grid³⁵.

The Red II Directive, in addition to individual and collective self-consumption, also provides for self-consumption organised as a renewable energy community. This involves an autonomous legal entity based on open and voluntary participation and controlled by shareholders or members (individuals, small or medium-sized enterprises, or local authorities, including municipal administrations), who are located in proximity to the renewable energy production facilities owned or developed by the community itself. The primary objective of such communities is to provide environmental, economic, or social benefits to their members and local areas, rather than to generate financial profit³⁶. Member States must ensure the right for final customers to participate in energy communities, guaranteeing these communities

³⁰On the terminological and legal distinction between collective self-consumption and energy communities, see De Almeida, Cappelli, Klausmann & van Soest (2021).

³¹See Sokółowski (2018).

³²See Article 2, point 14), Directive 2018/2001/EU.

³³See Article 2, point 15), Directive 2018/2001/EU. Regarding collective self-consumption, a notable antecedent is the document SWD(2015) 141 final, *Commission Staff Working Document: Best practices on Renewable Energy Self-consumption* – Accompanying the document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Delivering a New Deal for Energy Consumers (COM(2015) 339 final), Brussels, 15 July 2015, available on eur-lex.europa.eu.

³⁴That is a contract whereby a natural or legal person commits to purchasing electricity produced from renewable sources directly from an electricity producer. See Recital 17, Directive 2018/2001/EU.

³⁵See Article 21, paragraphs 1 and 2, Directive 2018/2001/EU.

³⁶See Article 2, para. 2, no. 16, of Directive 2018/2001/EU. On the benefits that the so-called “Energy community” can provide to society, with a comparison between the United Kingdom, Germany, and the United States, see Brummer (2018).

the ability to conduct activities of production, consumption, storage, and sale of renewable energy. Furthermore, they must be allowed to exchange self-produced renewable energy within the community and access all electricity markets in a non-discriminatory manner. Member States are also required to consider the possibility of support schemes to remove any formal and substantive barriers to their development³⁷.

With respect to the benefits associated with self-consumption, Directive 2018/2001/EU allows Member States to apply non-discriminatory and proportionate charges and tariffs on renewable energy self-consumers for renewable electricity they produce and retain, in three specific cases: *a*) if the energy benefits from support schemes, only to the extent that the project's economic sustainability and the incentive effect of such support are not compromised; *b*) from 1 December 2026, if the total share of self-consumption facilities exceeds 8% of the installed electricity capacity in a Member State and, as evidenced through a cost-benefit analysis by the national regulatory authority conducted through an open, transparent, and participatory process, the provision in paragraph 2, point *ii*³⁸, results in a disproportionate burden on the long-term financial sustainability of the electricity system or creates an incentive beyond what is objectively necessary for achieving the cost-effective deployment of renewable energy, and where it is not feasible to mitigate this burden or incentive by adopting other reasonable measures; *c*) if the energy is generated in installations with a total installed electricity capacity exceeding 30 kW³⁹.

Given the European framework on this matter, the key elements that characterise renewable energy communities can be identified as follows: *a*) open and voluntary participation from any local actor, including citizens, small and medium-sized enterprises, and local authorities (including municipal administrations); *b*) shared management that involves each member irrespective of economic contribution; *c*) a primary goal of generating environmental, economic, and social benefits for members and the community in which the energy community operates, rather than financial profit.

Regarding point *a*), open and voluntary participation means that Renewable Energy Communities (RECs) may not impose arbitrary and/or discriminatory criteria to exclude any consumer wishing to join the initiative. Conversely, they must guarantee the right for members to exit the community. However, the directive limits its regulation to consumer participation, leaving the exit provisions for members in the role of investors or shareholders to the transposition laws of individual Member States. This process will largely depend on the legal form chosen by the REC (primarily in the form of an association or cooperative⁴⁰) and the existing rules

³⁷See Article 22, Directive 2018/2001/EU

³⁸Accordingly, Member States ensure that renewable energy self-consumers, whether individually or through aggregators, are authorised to produce renewable energy, including for their own consumption; to store and sell any excess renewable electricity they produce, including through renewable power purchase agreements, electricity suppliers, and peer-to-peer trading arrangements, without being subject to discriminatory or disproportionate procedures, charges, or tariffs for renewable electricity produced from renewable sources that remains within their own usage.

³⁹See Article 21, paragraph 3, of Directive 2018/2001/EU.

⁴⁰See Biresselioglu, Limoncuglo, Demir, Reichi, Burhstaller, Schiullo & Ferrero (2021).

governing membership and exit⁴¹. Concerning specific participants, the directive excludes large enterprises, central administrations, and energy production and distribution companies from direct membership in RECs. Nonetheless, this does not preclude these entities, particularly the latter, from participating indirectly as external producers – entities that own and operate renewable energy generation facilities made available to the REC without becoming a member.

In terms of point *b*), the Red II directive requires that the governance of RECs be shared among members based on a principle of territorial proximity to the REC's production facilities and projects, and according to an autonomy principle, whereby the REC must remain independent of individual members or shareholders. This autonomy ensures that no single member or group of members can undermine the collective interest through undue influence on the REC's decision-making processes. Here again, Member States must establish rules on effective REC governance, tailored to the REC's legal structure, while ensuring compatibility with the principles set at the Union level.

Lastly, concerning point *c*), RECs can be classified as social innovations⁴², as their primary aim is to deliver socioeconomic and environmental benefits to both their self-consumers and the broader communities within which they operate. They can thus serve as catalysts for socioeconomic and environmental development in local areas. This does not imply an outright prohibition on profit generation; however, profits must be reinvested within the REC, primarily for the regular and extraordinary maintenance of production facilities, and to update technologies to enhance efficiency. Profits may also support activities connected to the REC's social and environmental objectives⁴³, such as providing services to members, investing in local infrastructure and sustainable mobility, or funding environmental projects and research and development initiatives in new technologies.

The impact of RECs on the energy market is therefore multifaceted⁴⁴. RECs promote the decentralisation of energy production, supporting local energy generation and reducing the reliance of end consumers on large energy companies. They yield economic savings for members who benefit from lower energy costs and increased autonomy. Ultimately, by advancing the use of energy derived from renewable sources, RECs support the energy transition and contribute to the decarbonisation of European industry and the achievement of the Union's climate objectives.

⁴¹See Roberts (2020).

⁴²See Brignoli (2022) at 37 ff.

⁴³In agreement on this point Cocciolo (2020) at 498.

⁴⁴On the role these new actors can play in energy markets, see Lowitzsch, Hoicka, & van Tulder (2020).

The Decentralisation of the Energy Market and the Active Role of Consumers

In the energy market, a dual decentralisation process is underway⁴⁵, driven by the principles of vertical and horizontal subsidiarity, and significantly advanced by the provisions of Directive 2018/2001/EU. This directive aims to embed individual, collective, and organised forms of renewable energy self-consumption into European legal frameworks. On one hand, there is an increasing involvement of local authorities in achieving energy transition targets set at EU and national levels, enabling them to participate in the formation and management of renewable energy communities. Specifically, the role of municipalities is emphasised, as they represent the collective interests of communities; in this way, the principle of proximity – derived from vertical subsidiarity – acts as a basis to foster horizontal subsidiarity, thus encouraging the active role of local communities that municipalities represent.

On the other hand, citizens are playing a more active role: transitioning from passive consumers to active participants in the energy market⁴⁶. This shift challenges the traditional model of large public companies operating as state monopolies or within regulated post-liberalisation frameworks. Instead, renewable energy communities stand in clear opposition to the vertically integrated enterprise model, embodying the principle of unbundling⁴⁷.

Through the formal recognition of individual, collective, and organised self-consumption, a new category known as the “prosumer” has emerged⁴⁸. This term, a blend of “producer” and “consumer,” refers to an individual who, while primarily a consumer, also produces a particular good. In the energy market, a prosumer is someone who generates electricity, albeit not as their primary economic or professional activity, while also being the end consumer (or self-consumer) of this energy⁴⁹. Essentially, a prosumer owns their own generation facility, using part of

⁴⁵See Miccù & Bernardi (2022) at 616-617. They observe that this process is driven, on one hand, by the further advancement of energy market liberalisation, spurred by transformations stemming from technological progress, and, on the other hand, by the increasing involvement of regional and local governments in achieving energy savings and consumption rationalisation objectives.

⁴⁶The term “energy citizens” was used in the study by Kampman, Blommerde & Afman (2016). The authors highlight that the increased spread of renewable energy production in Europe is set to enhance the active role of citizens, shifting from passive consumers to active producers of energy. They estimate that approximately 83% of European households have the potential to contribute to renewable energy production by 2030 and 2050. On the changing role of citizens and their direct involvement in the electricity sector, see also Katzeff & Wangel (2015).

⁴⁷In this regard, Bartlett Castellá (2022) at 304.

⁴⁸Iready McLuhan & Nevitt (1972) suggested the possibility that technological progress could enable consumers to also become producers. However, the term ‘prosumer’ was later coined by Toffler (1980), who had earlier, in Toffler (1970), hypothesised the merging of consumer and producer roles. For discussions on the role of prosumers in the energy market, see, among others: May & Huang (2023); Campos, Pontes Luz, Marín-González, Gähns, Hall & Holstenkamp (2020); Cseres (2018); and Leal-Arcas, Lesniewska & Proedrou (2018). Additionally, an interesting perspective is presented in Korsnes, Labanca, Campos & Bertoldi (2024), where energy prosumerism is categorised based on three interconnected dimensions within the intersecting concepts of energy sufficiency and energy justice: technological, ownership, and participation.

⁴⁹According to the definition provided by Parag & Sovacool (2016), «*prosuming refers to when energy customers actively manage their own consumption and production of energy*».

the energy produced to meet personal needs and feeding any surplus back into the grid for sale to other users, thus enabling direct energy exchanges among private individuals. This evolution marks a significant consumer-led opening of the energy market, allowing individuals to actively engage in the production of the energy they consume within a decentralised and more democratic marketplace⁵⁰.

In a market geared towards liberalisation and decarbonisation, final consumers can generate energy by installing photovoltaic or micro-wind systems in their homes or apartment buildings, thereby producing their own electricity and becoming producers. When the energy generated exceeds their consumption, they can sell the surplus back to the grid, contributing to the overall energy supply. This process is facilitated by smart meters and net metering systems that enable efficient monitoring and management of both generated and consumed energy. Consumers can also form autonomous legal entities, such as renewable energy communities, or invest in joint projects like wind or solar farms, thus becoming shareholders or co-owners of these infrastructures. Such initiatives foster the spread of renewable energy at a community level, encouraging active participation in the energy market. The result is a more active consumer, less dependent on large production companies and more aware of their own energy consumption, ultimately supporting a more efficient and flexible energy market⁵¹.

As noted, beyond restructuring the energy market, self-consumption configurations offer socio-economic and environmental benefits not only to the prosumers but also to the communities in which they operate, positioning themselves as tools for addressing energy poverty. Energy poverty is a complex phenomenon, influenced by a multitude of factors, with no universally accepted definition or uniform set of indicators for its assessment. While initial definitions considered energy poverty as a condition in which households spend more than 10% of their income on basic energy needs⁵², newer approaches utilise multiple indicators⁵³. Broadly, energy poverty can be defined as the inability or difficulty to

⁵⁰On energy communities as a contributing factor to sustainable energy democracy, see Diestelmeier (2021).

⁵¹On the central role of the prosumer in the future energy market see Jabobs (2017).

⁵²See Boardman (1991).

⁵³In a study by Kearns, Whitley & Curl (2019), it is suggested that energy poverty stems from four primary factors: the energy inefficiency of housing, high energy prices, low disposable income, and individual behaviour. Conversely, the 2020 report by the Italian Energy Poverty Observatory (OIPE), available on oipeosservatorio.it, at 9 ff., indicates that at the European level, two main data sources are utilised for monitoring energy poverty: the Survey on Income and Living Conditions (EU-SILC), which includes consensual indicators, and the Household Budget Surveys (HBS), which enable the construction of expenditure-based indicators. The Third Report of the European Energy Poverty Observatory (EPOV) (Bouzarovski, Thomson, Cornelis, Varo & Guyet (2020)) uses these sources to employ four primary indicators (two consensual and two income and expenditure-based) and 18 secondary indicators. Consensual indicators include households that report being unable to adequately heat their homes and those falling behind on bill payments. Among the income and expenditure indicators are those identifying a household as energy-poor if its energy expenditure ratio to income is more than twice the median value, or if the absolute energy expenditure is below half the median. In its report, OIPE also includes the so-called “10% indicator”, which considers households as energy-poor if their energy expenditure exceeds 10% of total income, and the Faiella-Lavecchia Index (Faiella & Lavecchia (2015)), which identifies households in energy poverty as those with high

access essential energy services and to meet the energy needs of oneself or one's family. It is primarily influenced by income, high energy costs, and inefficient housing that requires greater energy for heating or cooling.

In the fourth energy package, the European Commission explicitly identified the fight against energy poverty as a primary objective of the European Union. Among the tools aimed at achieving this goal are self-consumption and renewable energy communities, which, by generating savings and enhancing energy efficiency, can bring economic benefits to their members. These benefits range from reductions in energy bills and tax incentives to lower transportation costs, decreased system charges, and access to systems for monitoring and optimising consumption, simultaneously fostering greater awareness and responsibility among consumers⁵⁴. Renewable energy communities, however, offer an additional dimension compared to collective self-consumption: energy sharing. According to the intent of the European legislator, energy sharing is driven not by market principles but by a purely solidaristic approach, positioning renewable energy communities as a fundamental tool in combating energy poverty and providing vulnerable consumers with access to energy-sharing schemes⁵⁵.

Conclusions

The liberalisation and decarbonisation of the energy market are complementary processes that, if managed effectively, can accelerate the transition to a more sustainable and competitive energy market. Establishing an open and integrated energy market, backed by robust climate policy and support mechanisms, is essential for meeting the EU's decarbonisation goals by 2050.

The renewable energy self-consumption configurations introduced by Directive 2018/2001/EU, by promoting active citizen participation, are driving a shift towards a more democratic, efficient, and flexible energy market, reducing final customers' dependency on major energy companies and decreasing the prevalence of energy poverty.

The fifth energy package reaffirmed the central role of self-consumption configurations, particularly renewable energy communities, as a tool for achieving an equitable and inclusive energy transition that benefits consumers, especially vulnerable groups. However, a decisive role will be played by Member States and their national implementation measures. Many countries have already begun the process of implementing these regulations, which will be lengthy and must account for regional specificities and community needs. In several European countries, renewable energy communities still face challenges due to various factors, including

electricity and heating expenditure ratios, as well as those in severe deprivation with zero heating expenditure.

⁵⁴See Barroco, Borghetti, Capellaro, Carani, Chiarini, D'Agosta, De Sabbata, Napolitano, Nigliaccio, Nucci, Orozco Corredor, Palumbo, Pizzuti, Pulazza, Romano, Tossani & Valperta (2020) at 26 ff.

⁵⁵In this regard see Cocciolo (2024) at 498. On the central role of the sharing function inherent to renewable energy communities, which is distinct from supply and other similar activities such as peer-to-peer and collective self-consumption see Diestelmeier & Cappelli (2023).

regulatory obstacles, bureaucratic barriers, limited financing access, and a lack of awareness and technical knowledge among citizens. National regulations must therefore facilitate the spread of energy communities, enabling local authorities to support their establishment and active citizen participation, maximising their social and environmental potential.

To increase the prevalence of renewable energy communities, a more structured approach is required. From a regulatory standpoint, legislative reforms and incentives are needed to simplify approval processes and provide tax relief. Furthermore, favourable access to the energy grid should be guaranteed, with preferential rates to ensure equitable and transparent grid access for established communities. Dedicated financing should also be provided, with the creation of specific funds at both national and EU levels to finance energy community projects, including grants, low-interest loans, and guarantees. In terms of technical and informational support for citizens, there should be the establishment of information centres and digital platforms offering technical, legal, and financial assistance to groups interested in forming energy communities, as well as awareness campaigns to highlight the advantages and opportunities of this new model, involving citizens, SMEs, and local authorities. A significant contribution could also come from public-private partnership models, fostering solid partnerships between local authorities, private companies, and citizens to support shared energy projects and create sustainable business models. In this context, the role of municipal administrations is critical, as they must start prioritising energy issues, focusing their efforts on promoting renewable energy through self-consumption and directing public economic incentives towards social spending to combat energy poverty.

It is essential to remember that the energy community model, as previously discussed, stands in contrast to the model of large, vertically integrated companies. It is, therefore, crucial that this model remains under the control of citizens and local authorities (albeit with the support of production and distribution companies acting as external producers), thus serving as an engine for the economic development of the communities it operates within, while avoiding the dominance of large energy companies in their formation, especially through franchising and partnership models. While this approach allows companies to expand their presence in the renewable energy sector and communities to benefit from the expertise and resources of large firms, it also risks undermining the democratic and participatory nature that renewable energy communities are meant to uphold, exerting excessive control over them, limiting their independence, and altering their fundamental nature.

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