



## EU Electricity Market Reform and the Adoption of the Clean Energy Package Addressing System Flexibility

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### 1. Tiivistelmä

Euroopan unionin niin kutsuttuun 'puhtaan energian pakettiin' kuuluvat lainsäädäntöinstrumentit astuivat voimaan vaiheittain kevään ja kesän 2019 aikana. Siinä missä aiemmat EU:n energiamarkkinoita koskevat lainsäädäntöpaketit ovat koskeneet kansallisten energiamarkkinoiden vapauttamista kilpailulle, puhtaan energian pakettiin kuuluvat säädökset pyrkivät erityisesti luomaan työkalut, joiden avulla EU:n päästövähennystavoitteet on mahdollista saavuttaa.

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<sup>1</sup> The objective of the so-called Third Energy Package was to liberalize the national energy markets to a greater extent and to bring about further unbundling of transmission system operations from different interests, i.e. production, supply and trading. The package consists of the following legislative instruments: Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC, OJ L 211, 14.8.2009, p. 55-93; Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC, OJ L 211, 14.8.2009, p. 94-136; Regulation (EC) No 713/2009 of the European Parliament and of the

EL-TRAN-konsortio tutki analyysissa 2/2017 'Energy Union, renewable energy and the 'Winter Package'' komission puhtaan energian paketin lainsäädäntöehdotuksia erityisesti uusiutuvan energian osalta. Tässä analyysissa puolestaan keskitytään puhtaan energian pakettiin siltä osin, kuinka hyväksytyt lainsäädäntöinstrumentit pyrkivät mahdollistamaan erityisesti vaihtelevan ja hajautetun uusiutuvan energiantuotannon integroimisen sähköjärjestelmään vaarantamatta tehotasapainoa. Puhtaan energian paketin sisältämiä säännöksiä käsitellään tässä niiltä osin kuin ne koskevat sähköjärjestelmän joustavuuteen tähtääviä työkaluja sekä uusien markkinatoimijoiden, erityisesti kuluttajien, mahdollisuutta osallistua energiamarkkinoiden toimintaan.

### 1. Summary

The Clean Energy for All Europeans Package initially introduced by the European Commission in 2016 ('the Clean Energy Package') aims to set new rules to provide a regulatory framework for electricity markets characterized, inter alia, by an increasing share of renewable energy, more decentralized production and self-consumption as well as new actors such as 'active consumers'. The conventional centralized electricity market model has been forced to give way to changes, prompted in particular by the envisaged transition to a low carbon economy. This means that the rules laid down in the Third Energy Package of 2009<sup>1</sup> are outdated and can no longer accommodate the changes required by this transition.<sup>2</sup>

Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators, OJ L 211, 14.8.2009, p. 1-14; Regulation (EC) No 714/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003, OJ L 211, 14.8.2009, p. 15-35; Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005, OJ L 211, 14.8.2009, p. 36-54.

<sup>2</sup> For example, storage is not addressed at all in the Third Energy Package. The same applies to consumers as active participants in the market.

The Clean Energy for All Europeans Package (or 'Winter Package') aimed to facilitate a clean energy transition in the EU. What this essentially meant was that the Commission's proposals focused specifically on reforming the legislative framework so as to provide more flexibility to accommodate an increasing share of renewable energy in the energy system. While the EU has been one of the frontrunners globally in increasing the share of renewable energy in its energy mix<sup>3</sup>, especially with the help of public support policies, the next step is the integration of (variable) renewable energy into the energy system without compromising affordability and system reliability. To this end, this package – which has recently been adopted within the EU after several rounds of consultation and modifications – introduces provisions concerning both supply and demand sides.

In total, the package consists of eight pieces of legislation, of which the following were adopted in 2018:

- (1) Directive on the Energy Performance of Buildings Directive ('Energy Performance of Buildings Directive')<sup>4</sup>;
- (2) Directive on Renewable Energy<sup>5</sup> ('Renewable Energy Directive');

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<sup>3</sup> The quantity of renewable energy produced within the EU-28 increased by 64% between 2007 and 2017, Eurostat, 'Renewable energy statistics', available at: <[https://ec.europa.eu/eurostat/statistics-explained/index.php/Renewable\\_energy\\_statistics#Renewable\\_energy\\_produced\\_in\\_the\\_EU\\_increased\\_by\\_two\\_thirds\\_in\\_2007-2017](https://ec.europa.eu/eurostat/statistics-explained/index.php/Renewable_energy_statistics#Renewable_energy_produced_in_the_EU_increased_by_two_thirds_in_2007-2017)> (Accessed September 2019)

<sup>4</sup> Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency, OJ L 156, 19.6.2018, p. 75–91.

<sup>5</sup> 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, OJ L 328, 21.12.2018, p. 82–209.

<sup>6</sup> Directive (EU) 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.

<sup>7</sup> Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and

- (3) Directive on Energy Efficiency<sup>6</sup>;
- (4) Regulation on the Governance of the Energy Union and Climate Action<sup>7</sup>.

At the end of 2018, the EU legislators and the European Commission reached political agreements on each of the remaining items of the Clean Energy Package, which were formally adopted in May 2019. These are the following;

- (5) Regulation on Risk-Preparedness in the Electricity Sector<sup>8</sup>;
- (6) Regulation establishing a European Union Agency for the Cooperation of Energy Regulators<sup>9</sup>;
- (7) Directive on Common Rules for the Internal Market in Electricity ('Electricity Market Directive')<sup>10</sup>;
- (8) Regulation on the Internal Market for Electricity ('Electricity Market Regulation')<sup>11</sup>.

(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, OJ L 328, 21.12.2018, p. 1–77.

<sup>8</sup> Regulation (EU) 2019/941 of the European Parliament and of the Council of 5 June 2019 on risk-preparedness in the electricity sector and repealing Directive 2005/89/EC, OJ L 158, 14.6.2019, p. 1–21.

<sup>9</sup> Regulation (EU) 2019/942 of the European Parliament and of the Council of 5 June 2019 establishing a European Union Agency for the Cooperation of Energy Regulators, OJ L 158, 14.6.2019, p. 22–53.

<sup>10</sup> Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU, OJ L 158, 14.6.2019, p. 125–199.

<sup>11</sup> Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity, OJ L 158, 14.6.2019, p. 54–124.

2. Problem: How to address the grid integration of renewables, remove legislative barriers to system flexibility and enable consumer participation?

The EL-TRAN consortium examined the content of the Commission's legislative proposals included in the Winter Package published in November 2016 in its policy brief 2/2017 ('Energy Union, renewable energy and the 'Winter Package)'). In particular, the policy brief analysed the impact the Commission proposal(s) are likely to have on the regulation of renewable energy in the EU. Given the number of the new legislative tools adopted, not to mention their scope and complexity, a detailed analysis of the Clean Energy Package is not feasible here. Instead, this policy brief focuses on the key provisions concerning one of the priorities in the Clean Energy Package; that of introducing a harmonized framework for increasing system flexibility. In this respect, it should be noted that the flexibility needs are different in each EU Member State depending on multiple factors, including the potential for renewable energy power production and energy mix in general, such as dispatchable generation resources, existing (cross-border) interconnections and other infrastructure as well as availability of services and resources enabling various large and small consumers to participate in flexibility measures, not to mention their readiness and willingness to do so.

The Energy Union strategy adopted in February 2015 is based on a goal to offer consumers secure, competitive and affordable energy. It emphasizes five mutually supporting dimensions: improving energy security, creating a fully integrated internal energy market, improving energy efficiency, decarbonizing the economy and supporting research, innovation and competitiveness.<sup>12</sup> To achieve these objectives, the Energy Union calls for a 'fundamental transformation of Europe's

energy system' by ensuring inter alia the cost-efficient integration of renewables into the energy system. Furthermore, the Energy Union Strategy envisages active consumer participation in the market by empowering consumers by providing them with information, choice and creating flexibility to manage demand as well as supply.

The new legislative package aims to introduce tools to reach this end; 'to adapt the current market rules to new market realities'.<sup>13</sup> It aims to introduce a new electricity market design that is better adapted to the clean energy transition with new, in particular renewable, energy producers, and enabling full participation of consumers in the market. With the revised EU renewable energy target of 32% by 2030 (with the upwards revision clause in 2023), system flexibility becomes the key in integrating the variable renewable energy sources to the grid. The key flexibility options are dispatchable power plants, up-to-date (interconnected) transmission and distribution grids, demand-side management, storage technologies as well as the integration of the power, heat and transport sectors.<sup>14</sup>

This policy brief examines how these different resources providing flexibility are addressed in the Clean Energy for All Europeans Package. The issue becomes even more important given the increasing share of variable renewable energy in the grid. In the transition to a clean energy system, conventional back-up power sources are not envisaged although market distortions are being created in several Member States by the introduction of capacity mechanisms that remunerate conventional power production facilities for their availability or 'readiness' to generate electricity.<sup>15</sup> This policy brief focuses on the regulation of flexible solutions applied to currently still largely inflexible generation capacities, mindful of the objective of transitioning towards a greener energy portfolio.

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<sup>12</sup> 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) 080 final.

<sup>13</sup> European Commission, Proposal for a Regulation of the European Parliament and of the Council on the

internal market for electricity (recast), COM(2016) 861 final, p. 3.

<sup>14</sup> For an overview, see, e.g., IRENA, Power System Flexibility for the Energy Transition, Part I: Overview for policy makers (IRENA 2018), pp. 24-34.

<sup>15</sup> G. Hawker, K. Bell, S. Gill (2017) 'Energy Security in the European Union', 24 Energy Research and Social Science (2017), pp. 51-58.

### 3. Method and material

This policy brief reviews and analyses from a multidisciplinary point of view the following legislative tools in particular. These that include provisions that address the required increase of flexibility in the energy system with the increasing share of renewable energy (power) production. Whereas the Clean Energy for All Europeans Package consists of a total of eight items of legislation all addressing renewables, and grid integration to some extent, the most relevant items examined here are especially those concerning the new electricity market design, namely:

- (1) Directive on Common Rules for the Internal Market in Electricity
- (2) Regulation on the Internal Market for Electricity
- (3) Renewable Energy Directive

### 4. Addressing flexibility

#### 4.1 The role of the consumers

The Energy Union Strategy underlines the changing role of consumers – industrial, commercial and residential. Instead of being passive users, consumers should be provided with information and opportunities to play a more active role in the energy market as ‘active consumers’.<sup>16</sup> Currently the Member States’ regulatory frameworks are not (fully) aligned to support different activities the consumers can introduce and benefit from.<sup>17</sup> The Clean Energy Package aims to introduce a harmonized level playing field to engage consumers as active participants in the energy markets. From the flexibility point of view, consumers are envisaged to trade their flexibility and self-generated electricity in the energy markets; ‘[c]onsumers are essential to achieving the flexibility necessary to adapt the electricity system to variable and distributed renewable generation...[b]y

<sup>16</sup> See Article 2(6) for the definition of an active consumer. According to the definition, active customers means a final customer.

<sup>17</sup> See, e.g., S.-L. Penttinen and L. Reins, ‘System Boundaries of Nearly Zero-Energy Buildings in the European Union — Rethinking the Legal Framework for Active Consumer Participation’, 37 (4) *Journal of Energy and Natural Resources Law* (2019), pp. 389-404.

<sup>18</sup> Para. 8 of the preamble to the Electricity Market Directive.

empowering consumers and providing them with the tools to participate in the energy market more, and participate in new ways, citizens should benefit from the internal market in electricity and the Union’s renewable targets should be attained.’<sup>18</sup>

In essence, consumers should be able to participate directly in the market, either individually or through aggregators and/or other ‘community initiatives’ and by selling self-generated electricity, through self-storage or by adjusting their consumption<sup>19</sup> according to market signals and in return benefit from lower electricity prices or other incentive payments.<sup>20</sup> This requires smart metering systems as well as a dynamic electricity pricing contracts to ‘reward’ those consumers providing flexibility services by reducing their electricity bills. The Electricity Market Directive requires Member States to ensure that final customers with a smart meter installed can request a dynamic electricity price contract from a) at least one supplier and b) from every supplier that has more than 200,000 final customers.<sup>21</sup> Real-time pricing is essential in encouraging consumers to react to price signals and for them to benefit from participating in?? demand-side response.

However, as household loads are generally smaller, the Electricity Market Directive requires Member States to allow and foster participation in demand response through an intermediary between markets and consumers, namely, an aggregator. What this essentially means is pooling the smaller demand response resources together. The new electricity market design introduces the concept of ‘aggregations’, which means ‘a function taken by a natural or legal person that combines multiple customer loads or generated electricity for sale, for purchase or auction in any electricity market’.<sup>22</sup> Following an agreement

<sup>19</sup> Direct access to retail markets is prohibited; active consumers cannot sell their excess self-generated electricity directly to end-users; this can only be done through the use of aggregators, see Article 2(14) if the Electricity Market Directive.

<sup>20</sup> Article 15 of the Electricity Market Directive.

<sup>21</sup> Article 11 of the Electricity Market Directive.

<sup>22</sup> Article 2(14) of the Electricity Market Directive.

between customers and an aggregator, the aggregator can temporarily reduce their electricity consumption when demand for electricity is high. The reduced consumption provides flexibility which can in turn be sold in the market by the aggregator.

While access to markets has typically been possible only for the largest industrial consumers, aggregation service providers enable the participation of consumers through demand response measures. A harmonized approach adopted at EU level is considered necessary given that there are still Member States in which regulatory barriers exist; demand response is either not accepted as a resource for some market segments or is still limited to specific areas within the ancillary services.<sup>23</sup> According to the Electricity Market Directive, final customers must be allowed to participate alongside electricity generators in all electricity markets as well as in ancillary services and capacity markets in a non-discriminatory manner.<sup>24</sup> This underlines the equal treatment of supply-side and demand-side resources in the markets. Furthermore, the Electricity Market Directive requires Member States to allow independent aggregators, i.e. a market participant not affiliated to its customer's supplier<sup>25</sup>, to assume this role. Member States' regulatory frameworks should enable customers to enter into an agreement with an aggregator directly without the prior consent of the energy supplier.

In addition, the Electricity Market Directive introduces a new type of energy market actor: 'Citizens' Energy Communities'.<sup>26</sup> Citizens' energy communities are, for example, consumers living in the same neighbourhood or building who 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. As such, energy communities can participate in all segments of the value chain. While the Commission's original

proposal introduced 'local energy communities', the EU legislators renamed them 'citizens' energy communities', underlining their more autonomous character as an element to distinguish energy communities from traditional energy companies. This is further emphasized in the rules concerning the citizens' energy communities' governance, membership structure and purpose, as the decision-making powers within an energy community should be limited to members or shareholders not engaged in large-scale commercial activity and for which the energy sector does not constitute a primary area of economic activity.

Article 16 of the Electricity Market Directive requires Member States to set up an enabling regulatory framework that ensures open and voluntary participation in a citizens' energy community, certain rights for its members and the respective roles between the citizens' energy communities and distribution system operators (DSOs) as well as certain procedural rules. In addition, Member States may provide the opportunity for the energy communities in their regulatory frameworks to be open to cross-border participation as well as provide for the right to own, manage, establish, purchase or lease the distribution network in their area of operation according to the Electricity Market Directive's provisions concerning DSOs.

In addition to citizens' energy communities, the revised Renewable Energy Directive lays down rules for 'renewable energy communities'. These serve as a subcategory of citizens' energy communities. According to Article 2(16) 'renewable energy community' means a legal entity: (a) which, in accordance with the applicable national law, is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity; (b) the shareholders or members of which are natural persons, SMEs or local

<sup>23</sup> See, e.g. SEDC, 'Explicit Demand Response in Europe: Mapping the Markets 2017', p. 198.

<sup>24</sup> Article 17(1-2) of the Electricity Market Directive. See also preamble para. 26 of the Electricity Market Directive.

<sup>25</sup> Article 2(15) of the Electricity Market Directive.

<sup>26</sup> See Article 2(7) of the Electricity Market Directive.

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. As such, while citizens' energy communities encompass all activities of the value chain, renewable energy communities focus on the production and supply of energy from renewable energy sources.

Member States must also ensure in their regulatory frameworks the option for renewable energy communities to participate, e.g., in the tendering procedures of available support schemes. Furthermore, the participation should not be hindered due to unnecessarily complex administrative procedures; instead, Member States should simplify administrative barriers that currently exist in many Member States.

Furthermore, while priority dispatch for electricity derived from renewable energy sources is removed, it is nevertheless maintained concerning smaller renewable generation at least until 2026. In particular, this should enable feeding the (excess) electricity into the grid by community-owned small-scale generation and thus facilitate decentralization and consumer empowerment.<sup>27</sup>

#### 4.2 Storage

The legislative framework on the electricity market in particular is geared to facilitate the integration of more flexibility into the grid. Energy storage offers one way of doing this. While traditional pumped-storage hydro has dominated the storage technologies, battery storage technologies in particular are growing rapidly, especially due to declining technology costs. Prior

to the Clean Energy Package, the EU legislative framework on incorporating storage in distribution grids did not exist. The rules contained in the Clean Energy Package focusing on storage aim to remove the regulatory barriers to release unlock their potential in the market and provide a harmonized level playing field for the deployment of storage in the EU Member States. Article 3 of the Electricity Market Regulation underlines this by holding that all generation – including storage and demand resources – shall participate on an equal footing in the market. This creates both rights and obligations for market players.<sup>28</sup>

In particular, a degree of uncertainty has surrounded the interpretation and application of certain rules on energy storage that the revised legislative framework aims to address. These are notably the rules concerning ownership rights as well as the 'nature' of energy storage – in particular the latter has proved to be a controversial issue in those Member States that employ storage technologies in the energy system.

Due to the lack of a harmonized approach adopted at EU level concerning specifically storage, the EU Member States have thus far applied the existing legal concepts to energy storage, despite the fact that these may not fit the purpose.<sup>29</sup> For example, energy storage has been viewed simultaneously as both production and consumption of capacity, which has led, inter alia, to the application of double tariffs and/or taxation.<sup>30</sup> Lack of classification and the inconsistent interpretation among Member States have been identified as among the main barriers in energy storage deployment.<sup>31</sup>

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<sup>27</sup> Article 11 of the Electricity Market Regulation.

<sup>28</sup> For example, while the revised legislative framework includes market rules adjusted to provide more level-playing field for flexible resources (see, e.g., Article 7(3) of the Electricity Market Regulation), they at the same time set more stringent obligations such as balancing responsibilities for all market participants (Article 4 of the Electricity Market Regulation). Nevertheless, in particular with regard to certain small-scale generation exceptions from the participation to the system responsibility are provided for.

<sup>29</sup> See, e.g., D. Haverbeke, W. Vandorpe and R. Callaerts, 'Energy Demand Response and Energy Storage as Sources of Flexibility: Which Role for Regulatory Authorities?' 17 (1) Oil, Gas and Energy Law, Special Issue on 'Energy Law and Regulation in Low-carbon and Transitional Energy Markets' (2019), p. 19.

<sup>30</sup> As was the case, for example, in Belgium, *ibid.*

<sup>31</sup> See, e.g., Commission Staff Working Document, 'Energy Storage – the Role of Electricity' SWD(2017) 61 final, p. 17; G. Castagneto Gissey, P. E. Dodds and J. Radcliffe, 'Market and Regulatory Barriers to Electrical

The revised Electricity Market Directive defined, for the first time, the concept of 'energy storage' at EU level. According to the directive, energy storage means, within the context of the electricity system, 'deferring the final use of electricity to a later moment than when it was generated or the conversion of electrical energy into a form of energy which can be stored, the storing of that energy, and the subsequent reconversion of that energy back into electrical energy or use as another energy carrier.'<sup>32</sup> Furthermore, energy storage facility in the electricity system is defined as a facility where energy storage occurs.<sup>33</sup> The definitions are technology-neutral, thus providing a wider level playing field for all storage technologies and applications.

Article 16 of the Electricity Market Regulation addresses the problems of double tariff use with regard to storage. It states that network operators shall not discriminate against energy storage and shall not create disincentives for participation in demand response. Nevertheless, this provision applies only to network tariffs and, at least so far, the issue of possible double taxation remains unaddressed as it falls under the competence of the Member States. However, the Commission recently carried out an evaluation of the Energy Taxation Directive currently in force<sup>34</sup>, which can be expected also to shed light on the taxation of storage capacity.<sup>35</sup> In some Member States, such as Finland, the double taxation issue of energy storage has already been addressed.<sup>36</sup>

When it comes to the interpretation of unbundling rules with regard to storage technologies, the revised Electricity Market Directive states as a general rule that DSOs are not allowed to own, develop, manage or operate energy storage facilities.<sup>37</sup> Nevertheless, derogating from the main rule is possible in a situation where in an

open tender procedure, subject to review and approval by the regulatory authority, no other party has expressed interest in engaging in such activity, and such storage facilities are necessary for the DSOs to fulfill their obligations stemming from the Directive for the efficient, reliable and secure operation of the distribution system. Regulatory authorities must regularly reassess the potential interest of other parties to enter the market. Similar rules apply to TSOs, provided for in Article 54 of the Electricity Market Directive.

#### 4.3 Sector-coupling: combining electricity with other forms of energy

Sector-coupling has traditionally referred solely to electrification of end-use sectors such as heating and transport, whereas more recently the concept has been broadened to also encompass supply-sector coupling, such as different power-to-applications. Sector-coupling can provide flexibility to the energy system by coupling energy demand for heat, fuels and mobility by using power to heat, power to gas and power to mobility technologies. Prior to the adoption of the Clean Energy Package such cross-sector energy combinations were not addressed at the EU level. However, the revised regulatory framework cannot be characterized as being overambitious in regulating such cross-sector activities.

First, the new market design addresses the rules concerning electric vehicles. Article 33 of the Electricity Directive merely notes that Member States must 'provide the necessary regulatory framework to facilitate the connection of publicly accessible and private recharging points to the distribution networks.' DSOs are prevented from owning, developing, managing or operating recharging points for electric vehicles, with the exception of DSOs' own, private recharging points. Furthermore, the revised Energy Performance of Buildings Directive<sup>38</sup> aims to facilitate the roll-out

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Energy Storage Innovation', 82 Renewable and Sustainable Energy Reviews (2018), p. 788.

<sup>32</sup> Article 2(47) of the Electricity Market Directive.

<sup>33</sup> Article 2(47a) of the Electricity Market Directive.

<sup>34</sup> Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity, OJ L 283, 31.10.2003, p. 51–70.

<sup>35</sup> See

<[\[eu-framework-taxation-energy-products-and-electricity\\\_en#about-this-consultation\]\(https://ec.europa.eu/info/consultations/evaluation-eu-framework-taxation-energy-products-and-electricity\_en#about-this-consultation\)> \(Accessed April 2019\)](https://ec.europa.eu/info/consultations/evaluation-</a></p></div><div data-bbox=)

<sup>36</sup> 1226/2018 Laki sähkön ja eräiden polttoaineiden valmisteverosta annetun lain muuttamisesta.

<sup>37</sup> Article 36 of the Electricity Market Directive.

<sup>38</sup> Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings

of electro-mobility by pre-equipping buildings with electric vehicle infrastructure. Nevertheless, the development in this respect has not advanced very far as the Energy Performance of Buildings Directive only requires the installation of at least one charge point with regard to new, large, non-residential buildings and non-residential buildings undergoing major renovation.<sup>39</sup> With regard to existing buildings, Member States are competent to decide on the minimum number of recharging points for all non-residential buildings with more than twenty parking spaces, but only as of 2025. Similarly, according to Article 8, Member States must 'provide for measures in order to simplify the deployment of recharging points in new and existing residential and non-residential buildings and address possible regulatory barriers, including permitting and approval procedures, without prejudice to the property and tenancy law of the Member States.' As can be clearly seen, much is left to the discretion of the Member States in implementing the measures.

Second, the revised Renewable Energy Directive provides a first-ever target for renewable heating and cooling in Europe. According to Article 23, Member States must increase their proportion of renewable heat by 1.3% each year up to 2030. Waste heat and cold can contribute up to 40% to the target, whereas district heating and cooling will have to contribute to this sub-target by an annual average increase in renewables of at least one percentage point. Renewable electricity used in heating does not, however, count towards the indicative target of heating and cooling.

The target – as well as other related provisions on renewable heating and cooling – reflect a compromise between the legislators and Member States. For example, converting district heating from mostly coal- or gas-powered production to renewables is an area where Member States have very different potentials. Nevertheless, the target

is intended to spur more efforts in this particular sector that consumes roughly half of the EU's energy. A tool to this end is the National Energy and Climate Plans that Member States are required to draft under the Energy Union Governance Framework.

Despite the likewise modest extent of the provisions in respect of heating and cooling, heating and cooling have been characterized as 'the Cinderella of energy policy, so having it written into legislation like this will only be good.'<sup>40</sup>

#### 4.4 The role of the DSOs and system operators' enhanced cooperation

The envisaged shift from the traditional centralized energy system to a more distributed or decentralized energy system with multiple actors, increasing share of renewable energy sources and flexibility of demand requires enhanced coordination between market participants in order to ensure a reliable energy supply. Three distinct areas of action have been identified that are traditionally considered to impact the activities of DSOs. These are 1) core activities, such as planning, developing and maintaining the network, connecting the users to the grid, managing technical data and network losses; 2) prohibited activities such as electricity generation, and 3) certain 'grey areas of action' such as infrastructure for electric vehicles and ownership of flexibility assets.<sup>41</sup> Both the Electricity Market Directive and the Electricity Market Regulation aim to strengthen and/or clarify the different activities of DSOs, in particular given the new, more decentralized system structure.

It is accepted that allowing DSOs to manage some of the challenges associated with variable electricity generation locally could lead to reduction of network costs.<sup>42</sup> Nevertheless, given that many of the DSOs are part of vertically

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and Directive 2012/27/EU on energy efficiency, OJ L 156, 19.6.2018, p. 75–91.

<sup>39</sup> Article 8 of the Energy Performance of Buildings Directive.

<sup>40</sup> S. Morgan, 'IEA analysts: A heating and cooling target 'could make a big difference'', Euractiv, Mar 27, 2018, available at:

<https://www.euractiv.com/section/energy/interview>

[/iea-analyst-a-heating-and-cooling-target-could-make-a-big-difference/>](#) (Accessed October 2019)

<sup>41</sup> See, e.g., Council of European Energy Regulators, 'The Future Role of DSOs, a CEER Conclusions Paper', 13 July 2015, p.

<sup>42</sup> See European Commission, Proposal for a Regulation of the European Parliament and of the



integrated companies active on the supply side, any regulatory framework should address DSOs' neutrality in the new activities in which DSOs can and/or should participate. In particular, Article 32 of the Electricity Market Directive stipulates incentives for the use of flexibility in distribution networks. According to the Article, Member States must adopt a regulatory framework that not only allows but also incentivizes DSOs to procure flexibility services, including congestion management in their areas, in order to improve efficiency in the operation and development of the distribution system; '[i]n particular, regulatory frameworks shall ensure that distribution system operators to procure services from resources such as distributed generation, demand response or storage and consider energy efficiency measures, when such services cost-effectively supplant the need to upgrade or replace electricity capacity and which support the efficient and secure operation of the distribution system.'<sup>43</sup> By continuing to underline the equal role of flexibility resources in addition to traditional supply side resources, the Electricity Market Regulation states that excessive grid infrastructure should not be built where other options provide a better economic option. Such options include storage and demand response measures.

With regard to the first two categories in the adaptation to the decentralization of the power system the DSOs' roles should be strengthened, whereas the respective role(s) of the DSOs in terms of the grey areas of action, where DSOs may participate in the activities but where there may be concerns over the extent of such participation should in turn be clarified. In this respect, a need for regulatory control and/or unbundling have been identified.<sup>44</sup> This is addressed in Article 35 of the Electricity Market Directive, which requires both electric vehicle infrastructure and storage to be operated by 'at least' legally unbundled entities.

The revised legislative framework also requires Distributions Network Operators to become Distribution System Operators. This new role requires DSOs to play an increasingly active role in managing the grid.<sup>45</sup> Furthermore, the regulatory framework aims to strengthen cooperation between DSOs and Transmission System Operators (TSOs).

## 5. Conclusions

The Clean Energy for All Europeans legislative package is groundbreaking in that it clearly marks a shift from the traditional, centralized energy system to a decentralized, low-carbon energy system. While it should be noted that many provisions are fairly general due to the need to reach a level of consensus during the decision-making, the package nevertheless addresses several issues prompted by the 'new market reality' emerging since the adoption of the Third Energy Package. This in turn affords investors and new market players (legal) certainty when engaging in new activities. In this respect, the revised regulatory framework seeks to create a level playing field for the transition to a more decentralized model, in particular by attributing value to demand-side activities as well. In this respect the Commission's package has provided legislation in an area of its traditional strength, that is, market-making. The opportunities of prosumers, small-scale resource providers and other grass-roots agents of change to participate in the market are thereby facilitated. Yet from the point of view of accelerating the energy transition referred to in the 2015 Paris Agreement, the further questions arising concern the role of more precise financial incentives encouraging such prosumers and others, as well as information and planning activities on municipal, regional and national levels. In other words, in many Member States, more precise policy instruments are required to advance from this package.

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Council on the Internal market for Electricity, COM(2016) 861 final, p. 5.

<sup>43</sup> Article 32(1) of the Electricity Market Directive.

<sup>44</sup> Council of European Energy Regulators, 'The Future Role of DSOs, a CEER Conclusions Paper', 13 July 2015.

<sup>45</sup> While the traditional role of the DSOs has been to plan, maintain and manage networks and supply

outages, the emergence of distributed energy resources – such as distributed generation, demand-side response and storage – connected to the distribution network requires DSOs to intensify their role as active system operators. See, e.g., IRENA, Future Role of Distribution System Operators: Innovation Landscape Brief (IRENA 2019).

In order to encourage customers to make a behavioural change and incentivize demand-side measures providing the system with flexibility, the rules on dynamic pricing schemes and market signals are nevertheless a step forward given that in many Member States dynamic pricing is still lacking. Citizens' Energy Communities should be granted the right to 'regulatory treatment' similar to that of larger, 'more traditional' market actors. Furthermore, the activities energy communities can introduce should be supported in national legislative frameworks.

The Clean Energy Package is underlined as promising a 'new deal' for consumers and 'clean energy for all Europeans'. The shift from the traditional centralized power system to a more decentralized power system is reflected in the package, and in this respect marks a new era in the EU energy landscape, also from the regulatory perspective. Nevertheless, while the Clean Energy Package is successful in updating the outdated provisions of the Third Energy Package to reflect the changes taking place in the power sector, it is still only the first step. Much of the success of the Clean Energy Package, in particular in removing the regulatory barriers that have been hampering the realization of a more consumer-centric energy (electricity) market, depends on the effective implementation of the rules included in the Clean Energy Package in national laws and regulations and on formulating more precise incentives and other policy instruments accelerating the change this package seeks to support.

## 6. Recommendations

The provisions should be transposed into national legislation with certain exceptions by 2021. In Finland, many of the issues presented here have already been addressed and as such, the Clean Energy Package is not envisaged to result in extensive legislative reform. Nevertheless, the following issues require either legislative 'fine-tuning' or thorough revision.

- While independent aggregators can already now participate in the frequency containment reserves, participation in other market segments should also be granted through a revision of national legislation.

- As the law currently stands, energy communities are not adequately addressed in the regulatory framework and as such require thorough revision and consideration.
- The implementation of the package needs to be examined alongside the 2018 recommendations of the final report of the smart grids working group set up by the Ministry of Economic Affairs and Employment.
- To encourage the participation of prosumers and other citizens in the demand flexibility the new EU legislation seeks to promote, national policy instruments are most likely needed.
- National taxation measures and possible financial incentives should be considered to accelerate the emergence of aggregator services and the new business models they entail to facilitate the involvement of small-scale producers and energy communities. Redirecting some of the existing indirect support for fossil fuels offers ample opportunities for this.

The EL-TRAN Consortium examines what a resource-efficient electric energy system means, how to implement such a system, what sort of policy problems are likely to arise and how to resolve them. The Consortium is coordinated by Tampere University. The research partners are Tampere University of Applied Sciences, the University of Eastern Finland, the University of Turku, and VTT Technical Research Centre of Finland Ltd. The Consortium (project number 31213267141) is funded by the Strategic Research Council (SRC).

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