www.ogel.org

ISSN 1875-418X
Issue (Provisional)
Published October 2017

This article will be published in a future issue of OGEL (2017). Check website for final publication date for correct reference.

This article may not be the final version and should be considered as a draft article.

Oil, Gas & Energy Law Intelligence

User-centered Innovation in EU Energy Law: Market Access for Electricity Prosumers in the Proposed Electricity Directive

by A. Butenko

About OGEL

OGEL (Oil, Gas & Energy Law Intelligence): Focusing on recent developments in the area of oil-gas-energy law, regulation, treaties, judicial and arbitral cases, voluntary guidelines, tax and contracting, including the oil-gas-energy geopolitics.

For full Terms & Conditions and subscription rates, please visit our website at www.ogel.org.

Open to all to read and to contribute

OGEL has become the hub of a global professional and academic network. Therefore we invite all those with an interest in oil-gas-energy law and regulation to contribute. We are looking mainly for short comments on recent developments of broad interest. We would like where possible for such comments to be backed-up by provision of in-depth notes and articles (which we will be published in our 'knowledge bank') and primary legal and regulatory materials.

Please contact us at info@ogel.org if you would like to participate in this global network: we are ready to publish relevant and quality contributions with name, photo, and brief biographical description - but we will also accept anonymous ones where there is a good reason. We do not expect contributors to produce long academic articles (though we publish a select number of academic studies either as an advance version or an OGEL-focused republication), but rather concise comments from the author's professional 'workshop'.

OGEL is linked to **OGELFORUM**, a place for discussion, sharing of insights and intelligence, of relevant issues related in a significant way to oil, gas and energy issues: Policy, legislation, contracting, security strategy, climate change related to energy.

User-centered Innovation in EU Energy Law: Market Access for Electricity Prosumers in the Proposed Electricity Directive

Anna Butenko[*]

Disclaimer: The current paper was accepted for publication on the 26th of September 2017, and it analyzes the proposed Electricity Directive as available on this date.

Abstract

On 30 November 2016 the Commission released the Package of legislative proposals 'Clean Energy for All Europeans', also referred to as 'Winter Package'. One of the drivers of the proposed Package is the evolution of the energy consumers' role from a largely passive one, where consumers were simply customers of the energy suppliers, into a more proactive role, where consumers become prosumers. Enabled by smart meters, digital platforms and blockchain technologies, prosumers can also act in the energy market in the roles of traders and suppliers. The participation of prosumers in retail and wholesale energy markets is illustrative of the user-centered innovation, when prosumers innovate themselves rather than rely on the market to do so for them. The current paper aims to analyze whether the user-centered innovation in the energy market is effectively addressed by the proposed Electricity Directive. This analysis focuses on the energy prosumers' access to retail and wholesale energy markets. The paper also presents recommendations as to how to improve the regulatory effectiveness of the proposed Electricity Directive in relation to the energy prosumers' market access.

I. Introduction

On 30 November 2016 the Commission released the Package of legislative proposals 'Clean Energy for All Europeans' (also referred to as 'Winter Package' or 'Fourth Energy Package').[1] The proposed package aims to prioritize energy efficiency, achieve 'a global leadership in renewable energies', and provide 'a fair deal for consumers'.[2] In contrast to the previous packages, which were introduced because their predecessor was deemed insufficient in terms of achieving the goal of European internal market,[3] the rationale for the proposed Fourth Package is formulated as the profound change occurring in Europe's energy system due to

[*] Ph.D. Candidate Energy Law and Economics, Tilburg Law and Economics Center (TILEC), Tilburg University, and University of Amsterdam, a.s.butenko@uva.nl

[1] Proposal for a Regulation of the European Parliament and of the Council on the internal market for electricity (recast) COM/2016/0861 final/2 - 2016/0379 (COD);
Proposal for a Directive of the European Parliament and of the Council on common rules for the internal market in electricity (recast) COM/2016/0864 final/2 - 2016/0380 (COD); etc.
See <http://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition>, accessed 19 September 2017

[2] 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 clean energy for all Europeans, COM (2016) 860 final, p. 3

[3] Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity;
Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC;
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

technological developments and the need of adapting 'the Union market rules to a new market reality'.[4] It could be argued that 'the promotion of innovation is a leading thought behind the Winter package'.[5]

One of the drivers of the proposed Package is the evolution of the energy consumers' role from a largely passive one,[6] where consumers were simply customers of the energy suppliers, into a more proactive role, where consumers become prosumers.[7] The first prosumers emerged on the European energy market landscape as early as 1980s,[8] and their share among energy consumers has been growing in a slow-but-steady manner over the subsequent two decades.[9] More recently, however, the number of energy prosumers is increasing much faster, largely due to the technological developments and the resulting decline in the market price of solar panels – a popular energy production means among prosumers.[10] Whereas the energy prosumers' contribution to the total European energy demand is marginal at the moment,[11] this situation could quickly change given further technological development and adoption of the underlying technologies in the market (e.g. solar panels, batteries).[12] According to some estimates, more than 80% of the European energy consumers could become prosumers by 2050.[13]

The technological trends such as digitalization are also expanding the roles of prosumers: Whereas previously the energy prosumers were only producing renewable energy in parallel with their consumption role, currently they can also (pro)actively participate in the energy market in the roles of traders and suppliers, enabled by smart meters, digital platforms and blockchain technologies.[14] The new role of the energy prosumers implies the possibility of accessing the energy market, where prosumers could act on par with the incumbent market players, such as traditional energy producers, suppliers and traders. The participation of

---

[4] Recital 3 Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)

[5] Saskia Lavrijssen and Arturo Carillo, *'Radical Innovation in the Energy Sector and the Impact on Prosumer Regulation'*, (2017) Sustainability 9(7)

[6] There is more than one type of energy consumers – these could range from small and medium (households, small/ medium businesses), to large consumers (e.g. industries). In the present paper, the term 'energy consumer' is further used to refer to small and medium consumers.

[7] Energy prosumers are defined as consumers who produce energy to cover their energy demand partially or totally. See Yael Parag and Benjamin K. Sovacool, *'Electricity market design for the prosumer era'*, (2016) Nature Energy 1

[8] It is noted that prosumers could produce both electricity and biogas or biomethane (e.g. farmers). However, in the context of the current paper energy prosumers are referred to as prosumers producing electricity, as they represent the majority of prosumers.

[9] Marieke Oteman, Henk-Jan Kooij and Mark A. Wiering, *'Pioneering Renewable Energy in an Economic Energy Policy System: The History and Development of Dutch Grassroots Initiatives'*, (2017) Sustainability 9(550)

[10] Client Earth, *Prosumer Rights: Options for a legal framework post-2020*, May 2016, available online <http://www.greenpeace.org/eu-unit/Global/eu-unit/reports-briefings/2016/ClientEarth%20Prosumer%20Rights%20-%20options%20for%20a%20legal%20framework%20-%20FINAL%2003062016.pdf>, accessed 14 June 2017

[11] For example, in the Netherlands the prosumer-generated energy only covers 0,5% of the total Dutch electricity demand. See Rijksoverheid, Visie lokale energie, 8 November 2013, available online (in Dutch) at <https://www.rijksoverheid.nl/documenten/rapporten/2013/11/08/visie-lokale-energie>, accessed 14 June 2017

[12] Anna Butenko, *'Sharing Energy: Dealing with Regulatory Disconnection in Dutch Energy Law'*, (2016) European Journal for Risk Regulation 4, pp. 701- 716

[13] CE Delft, *The potential of energy citizens in the European Union*, September 2016, available online <http://www.cedelft.eu/publicatie/%20the_potential_of_energy_citizens_in_the_european_union/1845>, accessed 14 June 2017

[14] PwC, *Blockchain – an opportunity for energy producers and consumers?*, 2016, available online <https://www.pwc.fr/fr/assets/files/pdf/2016/12/blockchain_opportunity_for_energy_producers_and_consumers.pdf>, accessed 14 June 2017

prosumers in retail and wholesale energy markets is illustrative of the user-centered (or democratic) innovation, when prosumers innovate themselves rather than rely on the market to do so for them.[15] An example of such user-centered innovation is the emergence of peer-to-peer energy markets, where prosumers trade the excess energy among themselves and/ or with energy consumers on digital platforms.[16] Such initiatives are not widespread yet, but they are taking shape in a number of European countries, such as Germany and the Netherlands,[17] and are projected to become more common as the application of blockchain technology to the energy sector develops further.[18]

At the same time, the European energy regulatory framework reflects the traditional, top-down, centralized, and predominantly fossil, energy value chain.[19] In other words, the respective regulatory framework is 'geared' towards the existing level of technology and market design.[20] Indeed, the proposed Fourth Energy Package admits that 'the existing market rules are based on the predominant generation technologies of the last decade, i.e. centralized, large-scale fossil fuel-based power plants with limited participation of consumers', and that the shortcomings of these rules 'reduce the attractiveness of the energy sector for new investment'.[21] This framework relies on certain assumptions about the energy market structure – such as the perspective upon consumers as customers of the energy suppliers – that do not hold in the current circumstances. This is also recognized in the proposed package, which states that 'although consumers can generate and store electricity as well as manage their energy consumption more easily than ever, the current design of the retail market prevents them from being able to fully benefit from such opportunities'.[22]

As technology progresses and the formats of market design evolve, as is the case with the energy prosumers, the problem of regulatory disconnection could arise. Regulatory disconnection refers to the situation when innovation develops faster or differently than the respective legislation, while the latter is unable to keep up with the technological and market changes.[23] As innovation becomes increasingly complex and its pace intensifies, the challenge of regulatory disconnection, also referred to in the US-originating law and technology literature

---

[15] Eric Von Hippel, *Democratizing Innovation*, (MIT Press, Cambridge, MA, USA, 2005)

[16] DENA, *Blockchain in the energy transition. A survey among decision-makers in the German energy industry*, November 2016, available online <https://www.dena.de/fileadmin/dena/Dokumente/Meldungen/dena_ESMT_Studie_blockchain_englisch.pdf>, accessed 14 June 2017

[17] See <http://energypost.eu/lumenaza-creates-regional-electricity-markets-want-connect-1-4-million-solar-pv-producers-germany-consumers-locally/>, accessed 14 June 2017; <http://energypost.eu/energy-and-blockchain-here-are-the-most-promising-applications/>, accessed 14 June 2017

[18] PwC, *Blockchain – an opportunity for energy producers and consumers?* (n14) 14

[19] Martha M. Roggenkamp and Daisy Tempelman, '*Looking Back, Looking Ahead- Gas Sector Developments in the Netherlands and the EU: from Manufactured Gas via Natural Gas to Biogas'*, (2012) Journal of Energy & Natural Resources Law 30(4), pp. 523- 537;
Simone Pront-van Bommel, *'De elektriciteitsconsument centraal?'*, in Simone Pront-van Bommel (ed.), *De consument en de andere kant van de elektriciteitsmarkt*, (Centrum voor Energievraagstukken, Universiteit van Amsterdam, 2010)

[20] Rolf W. Künneke and John Groenewegen, '*Challenges for readjusting the governance of network industries'*, in Rolf W. Künneke, John Groenewegen and Jean-François Auger (eds), *The governance of network industries. Institutions, technology and policy in reregulated infrastructures*, (Edward Elgar Publishing 2009)

[21] Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1), p. 4

[22] Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1), p. 5

[23] Roger Brownsword and Morag Goodwin, *Law and Technologies of the Twenty-First Century*, (Cambridge University Press 2012)

as the pacing problem, becomes more pressing.[24] As the result of the pacing problem,[25] the existent regulatory framework might not be 'fit for purpose' any longer due to its disconnection from rapidly developing innovation. The regulatory disconnection could have significant negative impact upon innovation emerging in the context of highly regulated industries, such as the prosumers' participation in the retail and wholesale energy markets. The proposed Fourth Energy Package could be seen as an effort of the European Commission to address the problem of regulatory disconnection, since it aims to fill in 'a gap in the existing legislation' that arose as the direct result of 'new set of challenges […] which had not been envisaged at the time of preparing the Third Energy Package'.[26]

In such circumstances, the current paper aims to address two main research questions: The first research question is whether there is problematic regulatory disconnection between user-centered innovation, as illustrated by the prosumers' ability to access the energy market, and the Third Electricity Directive currently in force.[27] The second research question is whether this regulatory disconnection is effectively addressed by the proposed Fourth Electricity Directive. Besides providing an answer to these two research questions, the current paper also has a secondary goal: It aims to further develop and operationalize the theoretical concept of regulatory disconnection. Despite its popularity among law and technology academics, the concept of regulatory disconnection remains rather rudimentary. This paper aims to address the gap in academic literature by developing concrete and practical criteria which could be usefully applied to identify regulatory disconnection in practice and to evaluate it as problematic/ non-problematic.

To achieve these goals, the current research paper addresses several issues. First, it is important to look in more details at the activities of energy prosumers, and the role they could play in the market as the agents of user-centered innovation. This is addressed in Part 0 of the current paper. Furthermore, Part 0 discusses the concept of regulatory disconnection, as well as its application to the current discussion. In this part, the criteria that could be usefully employed in the analysis of regulatory effectiveness are also provided. Part 0 of the current paper analyzes the differences between the Third Electricity Directive currently in force, and the proposed Fourth Electricity Directive. This part also assesses whether there currently is a regulatory disconnection between user-centered innovation on the one hand, and regulation on the other hand. Conclusions are presented in the final Part 0 of the current paper, along with the recommendations as on how to increase the effectiveness of regulatory measures aimed at closing the gap caused by regulatory disconnection.

[24] Gary E. Marchant, Braden R. Allenby, and Joseph R. Herkert (eds), *The Growing Gap between Emerging Technologies and Legal-Ethical Oversight. The Pacing Problem*, (Springer 2011)
[25] In the current paper, the concepts of 'regulatory disconnection' and 'pacing problem' are considered as equivalents, and are used interchangeably.
[26] Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1), p. 3
[27] Directive 2009/72/EC (n3)

II. Energy Prosumers

1. The Emergence of Energy Prosumers

Consumers who engage in both consumption and production of a product or a service are referred to as 'prosumers'.[28] Energy prosumers are those consumers who produce energy to cover their energy demand partially or totally.[29] The motivation of energy consumer to produce (a part of) her energy demand could be both prudential, e.g. expected financial gains, and moral, e.g. the desire to reduce the carbon footprint.[30]

Besides producing energy individually at own premises, for example by the means of installing solar panels or heat pumps in their houses, prosumers could produce energy collectively.[31] First energy collectives in Europe were wind cooperatives – citizens' initiatives that collectively finance and exploit one or more wind turbines. Some of these cooperatives were established as early as 1980s, and emerged in response to anti-nuclear and pro-environmental movements among the citizens.[32] Other types of (local) energy initiatives started developing in the 2000s, and took off in the 2010s.[33] They range from a somewhat loose and sporadic cooperation e.g. regarding the collective procurement of solar panels for a number of household consumers in the neighborhood,[34] to much more structured and organized local sustainable energy communities collectively operating a production installation. The local energy initiatives involved in the production of renewable energy sources (RES) often resort to solar energy, in some cases in combination with wind, heat pumps, etc.

Next to producing energy, both individual prosumers and prosumers' collectives could provide flexibility to the market.[35] The importance of flexibility is increasing due to the rising share of sustainable energy in the European energy mix, as the latter is characterized by intermittency. As prosumers of local sustainable energy fulfil two parallel roles – that of consumers, and that of producers – they could engage in both flexible consumption[36] and flexible production.[37]

---

[28] Alvin Toffler, *The Third Wave*, (New York: William Morrow 1980)
[29] Parag and Sovacool (n7)
[30] Saskia A. C. M. Lavrijssen, *'The different faces of the energy consumers: Towards a behavioral economics approach'*, (2014) 10(3) Journal of Competition Law and Economics;
Brownsword and Goodwin (n23)
[31] Butenko (n12)
[32] Marieke Oteman, Mark Wiering and Jan-Kees Helderman, *'The institutional space of community initiatives for renewable energy: a comparative case study of the Netherlands, Germany and Denmark',* (2014) 4(11) Energy, Sustainability and Society, p. 7
[33] Oteman, Kooij and Wiering (n9)
[34] Fossil energy is commonly referred to as 'grey', whereas energy produced from renewable energy sources (RES) is referred to as 'green' or 'sustainable'.
[35] Flexibility refers to the consumers' ability to relatively swiftly react to the conditions on the market. Annelies Huygen, 'De consument en de (on)vrije elektriciteitsmarkt', in Simone Pront-van Bommel (ed.), De consument en de andere kant van de elektriciteitsmarkt, (Centrum voor Energievraagstukken, Universiteit van Amsterdam, 2010), p. 100
[36] The flexibility provided by consumers is usually referred to as 'demand side response' or DSR, and implies that consumers consume more when there is surplus, and respectively less when there is a shortage. Saskia Lavrijssen, *'Power to the Energy Consumers'*, (2017) TILEC Discussion Paper DP 2017-012
[37] Due to the intermittency of RES, as well as due to the structure of costs, the range of production flexibility is lower for local energy producers compared to 'traditional' fossil energy producers. However, it is noted that the introduction in this equation of the local energy storage (e.g. batteries in the houses) could change the situation in the future and significantly increase the production flexibility range. See Commission Staff Working Document, Best practices on Renewable Energy Self-consumption, Brussels, 15.7.2015, SWD (2015) 141 final

Thus, in addition to producing renewable energy, prosumers also produce energy market services, such as flexibility.

2. Market Access for Energy Prosumers

Originally local sustainable energy production has been the primary interest of both individual and collective prosumers.[38] However it is noted that 'in the recent years [the focus of energy prosumers] is slowly-but-surely shifting towards a market-participating model'.[39] To elaborate: Both individual and collective energy prosumers are increasingly interested to engage in the retail commodity market by the means of trading produced energy with other prosumers (peer-to-peer transactions) and in supplying it e.g. to one's neighbors or to one's family residing in a different region. This shift is noticeable in the business operations of the local energy communities.[40] Many European cooperatives and energy communities traditionally sell the produced energy to an energy supplier, and the profit is either going back to the shareholders or is invested in new projects (shareholder option). However relatively recently these collectives also started selling produced electricity to their members to accommodate their wish for self-supply. This is usually done via an intermediate energy supplier (indirect supply option): collectives sell the produced energy to a supplier, who in turn sells this energy to the collectives' members – its customers. There is even a limited number of collectives opting for direct supply, which implies the hurdle of obtaining the supplier's license from the national regulatory authority (NRA) to supply own members without intermediaries.[41]

Besides retails markets, energy prosumers are also interested in offering their self-generated electricity to the market players in the wholesale markets. Wholesale market access concerns both energy commodity and energy services markets.[42] Balancing market is an energy services market, which traditionally relies on the large market players (e.g. producers, large industrial consumers) to adjust their production and consumption in response to the balancing needs of the electricity transmission system operators (TSOs).[43] Due to the technical progress, illustrated by the roll out of smart meters and the ICT applications development, it becomes possible for the individual and collective prosumers to contribute to flexibility services used for balancing the electricity grid. Thus, prosumers could offer their energy services on the balancing market, previously reserved for large market players and inaccessible for prosumers.

The participation of individual and collective prosumers in retail and wholesale energy market is illustrative of user-centered innovation. The concept of 'user-centered innovation' is defined by Von Hippel, who distinguishes between the former and 'manufacturer-centric innovation'.[44] In making this distinction, the author emphasizes the actors who innovate: he argues that there is currently a 'trend toward democratization of innovation', meaning that users of products/ processes/ services can innovate themselves in order to suit their specific needs, rather than rely on the manufacturers to do so for them.[45] As local energy communities are prosumer-

[38] Oteman, Wiering and Helderman (n32)
[39] Butenko (n12), p. 704
[40] For example, 50% of Dutch local energy communities are interested in the supply/ resale of green electricity. See Oteman, Kooij and Wiering (n9), p. 112
[41] Butenko (n12), p. 712
[42] Client Earth, *Prosumer Rights: Options for a legal framework post-2020* (n10)
[43] Balancing is an essential element of operating the electricity grid: the supply of electricity has to be directly matched to the demand of it, as electricity cannot be stored, and as misbalance between the two in the electricity network could lead to technical problems, such as black outs. See Huygen (n35)
[44] Von Hippel (n15)
[45] Von Hippel (n15)

driven, they represent excellent (and sometimes necessary) user-centered innovation opportunities.[46] The emergence of the new types of user-centered innovative transactions on both wholesale and retail energy markets catalyzes other formats of cooperation, services, market structures and cost-benefit allocation than previously existed in the European energy market.

The wholesale market access for prosumers is endorsed as a desirable and positive outcome in multiple European policy documents.[47] This concerns both commodity and energy services markets. To illustrate: The Communication from the Commission on the Progress towards completing the Internal Energy Market, says that 'if consumers of all sizes, including households and SMEs [small and medium enterprises], are to benefit from adjusting consumption and production according to wholesale market price signals, they need to be able to offer their flexibility on the market, directly or indirectly, but always with the freedom of choice'.[48]

The same is true for prosumers participation in the retail market. For example, the Commission Staff Working document 'Best practices on Renewable Energy Self-consumption'[49] presents a well-argued case regarding the positive effects of the situation when the locally produced energy is also consumed locally, and at the moment of production.[50] This can be achieved by peer-to-peer transactions among the energy prosumers on the local level, which would imply retail market access.[51] The benefits of such situation include an increased 'market integration of distributed renewable energy generation'[52] and hence its higher share in total energy mix, more 'consumer empowerment by allowing active participation and profit from energy markets, as well as encouraging smarter consumption patterns', reduced network costs, and increased financial contribution to the energy transition.[53] The prosumers' participation in retail markets and engaging in peer-to-peer transactions also falls under the definition of sharing, or collaborative, economy. According to the European Commission, new business models of the collaborative economy 'have a significant potential to contribute to competitiveness and growth'.[54] Thus, the prosumers' wholesale and retail market access are in line with the European energy policy agenda and goals.

It can be concluded that there is an ambition of the individual and collective prosumers to broaden the scope of their activity beyond production to supply and trade of locally produced

[46] Prosumerism is an 'innovation by consumers [that] is also resulting in innovation for consumers and opens up new business models'. See 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, Brussels, 15.7.2015, COM (2015) 339 final, p. 6.
[47] Energy Regulation: A Bridge to 2025. Conclusions Paper, ACER, Recommendation of the Agency on the regulatory response to the future challenges emerging from developments in the internal energy market, 19 September 2014; etc.
[48] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Progress towards completing the Internal Energy Market, COM (2014) 634, p. 12
[49] Best practices on Renewable Energy Self-consumption (n37)
[50] The document defines self-consumption as 'the amount of electricity actually consumed onsite as a percentage of the total electricity produced'. See Best practices on Renewable Energy Self-consumption (n37), p. 3
[51] Butenko (n12)
[52] Best practices on Renewable Energy Self-consumption (n37), p. 6
[53] Best practices on Renewable Energy Self-consumption (n37), p. 3
[54] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, A European agenda for the collaborative economy, COM (2016) 356 final, p.2

energy and of their flexibility. The prosumers are aspiring to become market players (albeit small), whose business opportunities are similar to those of the large market players, such as traditional energy producers, traders and suppliers.[55] To be able to realize their technical and economic capabilities, energy prosumers require access to both retail and wholesale markets. The legal provisions of the European regulatory framework representing unjustified obstacles for the innovation taking place at the level of local sustainable energy initiatives are potentially problematic, as they could hamper the reaching of the EU policy goals. The current degree of match between innovation and respective regulatory framework is assessed from the theoretical perspective of regulatory disconnection. This theoretical perspective is discussed in the next section of the present paper.

III. Regulatory Disconnection

1. Regulatory Disconnection – Setting the Scene

The relationship between technology and regulation[56] is a two-way street: technology is not only shaped by regulation, but can also influence the latter.[57] On the one hand, 'regulation co-determines the development of technologies and even technologies that will be embraced by society, as well as technologies that would be thrown away from the main course of technological development'.[58] On the other hand, as new technologies develop, regulation could become less connected to the state-of-the-art in the market and less efficient.[59] The efficiency of regulation could decline as the result of the so-called 'regulatory disconnection',[60] which refers to the situation when there is a gap between the regulation and its respective target due to the development of technology/ innovation – the latter developing either faster or differently than envisaged.[61]

Regulatory disconnection does not automatically occur when regulation is faced with new technologies – many innovations fit well with the existing regulations.[62] Such fit arguably

[55] Butenko (n12), p. 704

[56] In the current paper regulation is defined 'as deliberate state influence', where regulation 'covers all state actions that are designed to influence business or social behavior'. In such definition, the concept of regulation comprises both soft and hard law. See Robert Baldwin, Martin Cave, and Martin Lodge, *Understanding Regulation: Theory, Strategy and Practice*, (Oxford University Press, 2012)

[57] Anna Butenko and Pierre Larouche, *'Regulation for Innovativeness or Regulation of Innovation?'*, (2015) Law, Innovation and Technology 7(1)

[58] Dmitrii Trubnikov, '*Analysing the Impact of Regulation on Disruptive Innovations: The Case of Wireless Technology'*, (2017) Journal of Industrial Competition and Trade, p. 9

[59] Charles Wolf Jr., '*A Theory of Nonmarket Failure: Framework for Implementation Analysis'*, (1979) The Journal of Law & Economics 22(1), pp. 107- 139, p. 122;
See also Jonathan B. Wiener, '*The regulation of technology, and the technology of regulation'*, (2004) Technology in Society 26, pp. 483- 500

[60] Brownsword and Goodwin (n23);
Roger Brownsword and Han Somsen, *'Law, Innovation and Technology: Before We Fast Forward- A Forum for Debate'*, (2009) 1(1) Law, Innovation and Technology

[61] It is noted that regulatory disconnection appears in different formulations in various literature streams: Whereas in European law and technology literature it is often called 'regulatory disconnect', it is usually referred to as 'pacing problem' in the US-originating literature. See Gary E. Marchant, Kenneth W. Abbott, Braden R. Allenby (eds), *Innovative Governance Models for Emerging Technologies*, (Edward Elgar Publishing 2013);
Marchant, Allenby, and Herkert (n24)

[62] Lyria Bennett Moses, *'Agents of Change: How the Law 'Copes' with Technological Change'*, (2011) Griffith Law Review 20(4)

occurs more often in case of incremental innovations compared to radical ones,[63] and in case of sustaining innovations compared to disruptive ones.[64]

Regulatory disconnection could manifest in a number of ways, and assume the following formats: regulatory void or gaps; uncertainty in the application of existing regulations; regulatory over- or under-inclusiveness; and/ or regulatory obsolescence.[65] In fact, some degree of disconnect is characteristic to the relationship between innovation and technology on the one hand and regulation on the other hand, mainly due to the inherent goal of legal certainty attributed to regulation.[66] In such conditions it could be rather challenging to establish whether the regulatory disconnection between innovation and regulation is problematic.

The law and technology literature does not offer much clarity in this respect: Whereas this academic stream emphasizes that the presence of regulatory disconnection is not negative as such, [67] it does not provide clear guidelines as to identifying the situations when regulatory disconnection is, in fact, problematic. In such conditions, the concept of regulatory disconnection could be enriched with the insights from regulatory theory literature: It could be argued that regulatory disconnection is only problematic in the situations when it diminishes regulatory efficiency and causes regulatory failure.[68] The application of the regulatory theory's insights to the concept of regulatory disconnection is discussed in the sub-section below.

2. Regulatory Failure and Regulatory Efficiency

'Good' regulation has the legislative mandate (is authorized by Parliament, which ensures sufficient democratic participation); is accountable; is enacted and enforced by the regulators who possess sufficient expertise, and by the means of 'proper' regulatory processes; and is efficient.[69] Regulation that does not satisfy one or more of the above criteria could be described as 'regulatory failure'.[70] Regulatory failure may be caused by the intervention of an external factor, such as technology, as well as be the result of the resistance of regulatees (compliance failure), or originate with the regulators themselves (failure to regulate or enforce).[71] The current paper focuses on the former type of regulatory failure, as the most relevant to the current discussion.

The external factor, such as the emergence of new technology or innovative market development, could negatively affect regulatory efficiency.[72] The exact definition of regulatory

---

[63] Bert-Jaap Koops, *'Ten Dimensions of Technology Regulation: Finding your Bearings in the Research Space of Emerging Technologies'*, in Morag Goodwin, Bert-Jaap Koops and Ronald Leenes (eds), *Dimensions of Technology Regulation*, Conference proceedings of TILTing Perspectives on Regulating Technologies, (Wolf Legal Publishers 2010)

[64] Alexandre de Streel and Pierre Larouche, *'Disruptive Innovation and Competition Policy Enforcement'*, (2015) TILEC Discussion Paper DP 2015-021

[65] Bennett Moses (n62)

[66] Sofia Ranchordás, *Constitutional Sunsets and Experimental Legislation: A Comparative Perspective*, (Edward Elgar Publishing 2014)

[67] Brownsword and Somsen (n60);
Lyria Bennett Moses, *'How to Think about Law, Regulation and Technology: Problems with 'Technology' as a Regulatory Target'*, (2013) Law, Innovation and Technology 5(1)

[68] Butenko and Larouche (n57)

[69] Baldwin, Cave, and Lodge (n56), p. 25- 39

[70] Baldwin, Cave, and Lodge (n56), p. 25- 39

[71] Brownsword and Goodwin (n23), p. 271

[72] Stephen Breyer, '*Analyzing Regulatory Failure: Mismatches, Less Restrictive Alternatives, and Reform'*, (1979) Harvard Law review, 92: 3, pp. 547- 609; Wolf Jr. (n59), p. 110

efficiency depends on the adopted view upon (i) the rationale for regulation; and upon (ii) the means for the regulatory efficiency's assessment. These two aspects are regarded in turn.

Traditional regulatory theory claims that 'the most important justifications for government regulation of the economy are well described as instances of classical market failure'.[73] In such conditions regulation should aim 'to reduce, if not remove, these [market] imperfections'.[74] A somewhat broader perspective stipulates that market failure is not the only possible motivation for regulation: regulatory goals are mixed and could include both economic and social rationales.[75] It could be stated that efficient regulation prevents future market and/ or social failures, and minimizes the effect of the ones that already occurred.[76]

Moreover, there are two ways to evaluate regulatory efficiency: The first way to assess it is to compare the goals set out in the regulatory mandate with the results achieved by the regulation in question. In such conditions, regulation is efficient when it reaches its aims, regardless of incurred costs.[77] The regulation could be deemed inefficient based on the presence of inefficient regulatory outcomes, where the discrepancy between the goals of regulation and the achieved results is obvious. Such outcomes are commonly described as 'futility', 'jeopardy', and 'perversity'.[78] While futility outcome occurs when a regulatory intervention does not affect the status quo, jeopardy outcome is characterized by negative side-effects of the regulatory measures, and finally perversity is attributed to the outcome when the introduced regulatory instrument reaches the opposite effect compared to the originally envisaged.[79]

The second way to evaluate regulatory efficiency is to judge both the achieved results and the level of incurred costs.[80] Efficient regulation is thus regulation that not only succeeds in preventing future market and/ or social failures, and in minimizing the effect of the existing ones, but that also does so 'at the least possible level of inputs or costs' and thus achieves productive efficiency.[81] In such situation, inefficient regulation could be identified either on the basis of inefficient regulatory outcomes of futility, jeopardy and perversity, or on the basis of inadequate cost-benefit analysis.[82] In practice it is unlikely that the aspect of incurred costs will be disregarded when assessing the effectiveness of regulation, as the regulation is expected to deliver the outcomes stipulated in its mandate at a reasonable and societally acceptable cost.[83]

Regardless of whether the regulatory costs are considered or not, the assessment of regulatory efficiency relies upon the analysis of the discrepancy between the regulatory goals on the one hand, and the achieved results on the other hand. In practice, this means that this assessment could only be applied with certainty to already existing regulation, that has been in place for at

[73] Breyer (n72), p. 553
[74] Wolf Jr. (n59), p. 110
[75] Tony Prosser, *'Regulation and Social Solidarity'*, (2006) Journal of Law and Society 33, pp. 364- 387;
Tony Prosser, *The Regulatory Enterprise: Government Regulation and Legitimacy*, (Oxford University Press, Oxford, UK, 2010)
[76] 'While regulation has typically focused on preventing "harmful" behaviors, there are some regulations that encourage "constructive" behaviors'. See Joseph Stiglitz, *Regulation and Failure*, in David Moss and John Cisternino (eds), *New Perspectives on Regulation*, (Cambridge Tobin Project 2009), p. 12
[77] Baldwin, Cave, and Lodge (n56), p. 30
[78] Albert O. Hirschman, *The Rhetoric of Reaction: Perversity, Futility, Jeopardy*, (Belknap Press 1991)
[79] Hirschman (n78)
[80] Baldwin, Cave, and Lodge (n56), p. 30
[81] Baldwin, Cave, and Lodge (n56), p. 30
[82] Orbach, B., (2013), What is Government Failure?, Yale Journal on Regulation 30:44, pp. 44- 56, p. 56
[83] Baldwin, Cave, and Lodge (n56), p. 69

least some time. Thus, this approach is useful in establishing a retrospective regulatory failure. In the evaluation of a very recent regulation, or even regulation in the making, aiming to close the gap with technology, such perspective is applicable to identifying only a prospective, or potential, regulatory inefficiency.

The perspective on regulatory failure as caused by the external factor could be usefully applied in the context of regulatory disconnection, as this disconnection between innovation and the respective regulation could result in diminished regulatory efficiency. Thus, once the presence of regulatory disconnection is established, this disconnection should be evaluated as either negative (leading to regulatory failure) or neutral. If the regulatory disconnection is deemed neutral and does not lead to regulatory failure, the regulatory resources should not be wasted on addressing it. In fact, allowing it to persist could prove beneficial in the long-term, as more is known about the technology in question. In contrast to what is suggested in the law and technology literature,[84] in cases when regulatory disconnection does not represent an obvious regulatory failure, 'it might be wiser to delay regulatory scrutiny as long as possible'. [85]

In the previous section of the present paper it is asserted that prosuming energy is an example of user-centered innovation, currently taking shape in the European energy market. Furthermore, it is argued that to realize the economic and social benefits associated with this innovation, both individual and collective energy prosumers necessitate access to wholesale and retail energy markets. In such circumstances, the concept of regulatory disconnection is a suitable theoretic perspective to discuss the 'match' between innovation, as illustrated by prosumers' market participation, on the one hand, and respective regulation, as illustrated by EU energy legislation, on the other hand. The presence of the gap between innovation and regulation is performed in the subsequent section of the current paper, where the Third Electricity Directive currently in force and the proposed Fourth Electricity Directive are evaluated.

IV. Prosumers' Market Access in European Energy Law

1. Background of European Energy Law

The initial goal of the European energy policy has been the creation of a single European energy market. Accordingly, both the First[86] and the Second[87] Energy Packages aimed at market opening and liberalization. The policy underwent a paradigm shift in 2006- 2007 – its scope was broadened to include besides competition also sustainability and security of supply.[88]

[84] Baldwin, Cave, and Lodge (n56)
[85] Butenko and Larouche (n57)
[86] Directive 96/92/EC (n3);
Directive 98/30/EC of the European Parliament and of the Council of 22 June 1998 19 concerning common rules for the internal market in natural gas
[87] Directive 2003/54/EC (n3);
Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC;
Regulation 1228/2003/EC of the European Parliament and of the Council of 26 June 2003 on conditions for access to the network for cross-border exchanges in electricity;
Regulation 1775/2005/EC of the European Parliament and of the Council of 28 September 2005 on conditions for access to the natural gas transmission networks
[88] Green Paper from the Commission, A European Strategy for Sustainable, Competitive and Secure Energy, COM (2006) 105;

Hancher and Larouche call this shift 'managed competition', to emphasize that competition goal remained primary to the other two.[89] This policy reorientation is reflected in the goals of the Third Energy Package adopted in 2009, aiming to establish an integrated European energy market that is competitive, secure and environmentally sustainable.[90] It could be argued that currently the EU energy policy is undergoing yet another paradigm shift. Whereas the three policy pillars of competition, sustainability and security of supply remain in place,[91] the focus is shifting in the direction of what could be called 'competitive and secure sustainability'.[92] In other words, not only do sustainability and security of supply seem to gain a more equal footing relative to competition, but sustainability emerges as the leitmotif of the EU energy policy. This shift is evident in the stated goals of the proposed Fourth Energy Package, formulated as 'energy efficiency first, the EU's global leadership in renewables, and a fair deal for energy consumers'.[93]

Besides reflecting the change in European energy policy's 'gears' from competition to sustainability, the proposed Fourth Energy Package is also presented as the answer to new technological developments that 'had not been envisaged at the time of preparing the Third Energy Package'[94] and since then led to fundamental changes in the architecture of the European energy market.[95] The proposed Package boldly states that it 'seeks to close the gap [in the existing legislation] and present an enabling framework to reflect technological developments in the sector'.[96]

As prosumers more often engage in the production of electricity compared to production of gas, the analysis in current paper is limited to the Third Electricity Directive currently in force, and the proposed Fourth Electricity Directive. It is noted that due to the scope and the length of the current paper it is not possible to analyze all the legal provisions and the consequences of these provisions for the market and the market participants in detail. A thorough and detailed analysis of retail and wholesale market access provisions and their market impact is an avenue for further academic research.

Communication from the Commission to the European Council and the European Parliament, An energy policy for Europe, COM (2007) 1

[89] Pierre Larouche and Leigh Hancher, *The coming of age of EU regulation of network industries and services of general economic interest*, in Paul Craig and Gráinne de Búrca (eds.), *The Evolution of EU Law*, (Oxford University Press 2010)

[90] Third Electricity Directive claims that 'the internal market in electricity […] aims to deliver real choice for all consumers of the European Union, be they citizens or businesses, new business opportunities and more cross-border trade, so as to achieve efficiency gains, competitive prices, and higher standards of service, and to contribute to security of supply and sustainability'. Moreover, the Directive states that 'a well-functioning market should also provide consumers with adequate measures to promote the more efficient use of energy for which a secure supply of energy is a precondition'. See, respectively, Recital 1 and Recital 6 of Directive 2009/72/EC (n3)

[91] See https://europa.eu/european-union/topics/energy_en, accessed 15 August 2017.

[92] For example, the five dimensions of the Energy Union strategy include security, integrated internal market, energy efficiency, climate action and innovation. See https://ec.europa.eu/commission/priorities/energy-union-and-climate_en, accessed 15 August 2017.

[93] Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1), p. 2

[94] Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1), p. 13

[95] Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1), p. 3

[96] Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1), p. 13

2. Prosumers' Market Access in the Third and the proposed Fourth Electricity Directive

The Package of legislative proposals 'Clean Energy for All Europeans' (also referred to as 'Winter Package' or 'Fourth Energy Package'), containing among others the proposal for the Fourth Electricity Directive, was presented by the Commission on 30 November 2016.[97] In practical terms, the objective of the proposed Electricity Directive is to address the regulatory disconnection between innovation, as exemplified by the individual and collective prosumers' ambition and technical capabilities to access retail and wholesale markets, and the provisions of the Third Electricity Directive. In such conditions, it is most useful to contrast the provisions related to the prosumers' market access contained in both Directives. The differences between the two Directives are illustrated in the figure below.

3RD ELECTRICITY DIRECTIVE	PRODUCTION	WHOLESALE MARKET COMMODITY		WHOLESALE MARKET SERVICES		RETAIL MARKET	
		DIRECT	INDIRECT (AGGREGATOR)	DIRECT	INDIRECT (AGGREGATOR)	DIRECT	INDIRECT (AGGREGATOR)
INDIVIDUAL PROSUMERS	✓	✗	✗	✗	✗	✗	✗
COLLECTIVE PROSUMERS	✓	✓	✗	✓	✗	✓	✗

4TH ELECTRICITY DIRECTIVE	PRODUCTION	WHOLESALE MARKET COMMODITY		WHOLESALE MARKET SERVICES		RETAIL MARKET	
		DIRECT	INDIRECT (AGGREGATOR)	DIRECT	INDIRECT (AGGREGATOR)	DIRECT	INDIRECT (AGGREGATOR)
INDIVIDUAL PROSUMERS	✓	✓	✓	✓	✓	✗	✓
COLLECTIVE PROSUMERS	✓	✓	✓	✓	✓	✓	✓

✗ NO ACCESS ✓ ACCESS W/O SPECIAL PROVISIONS ✓ ACCESS WITH SPECIAL PROVISIONS

Figure 1: The Impact of the 3rd and the 4th Electricity Directives on Prosumers' Market Access

There are several activities the individual and collective energy prosumers could engage in, that are relevant to the discussion in the current paper. These activities include production/ generation, trade on the wholesale market for both commodity and energy services, and supply on the retail market. The respective provisions of the proposed Fourth Electricity Directive are discussed below.

The Third Electricity Directive takes important steps towards the creation of level playing field for all European energy market actors.[98] For example, it contains special provisions for

[97] Proposal for a Regulation COM/2016/0861 final/2 - 2016/0379 (COD) (n1);
Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1); etc.

[98] Level playing field means that every market participant has to abide by the same set of rules, and thus has a fair and equal chance of succeeding. In other words, in a liberalized market all energy producers, suppliers, traders, and other market actors face the same conditions (are treated in the same manner) and can freely compete with one another.

producers of renewable and decentralized energy, ensuring that their potential disadvantages in comparison to more established market players (e.g. smaller size) do not represent a barrier for market participation.[99] However, the benefits of level playing field for energy market players are not extended to energy prosumers. A careful analysis of the definitions contained in the Third Electricity Directive reveals that individual and collective prosumers are, in fact, not recognized.[100] Indeed, the definitions adopted in the Directive are drawing sharp lines between 'final customers', purchasing electricity for own use, and other market actors, such as energy producers, traders and suppliers.

Whereas the Third Electricity Directive did not explicitly prohibit individual and collective prosumers from engaging in local energy generation, it did not support it either. This shortcoming is addressed in the proposed Fourth Electricity Directive. First, it introduces separate definitions of 'active customers'[101] and of 'local energy communities',[102] thereby acknowledging that final customers can also engage in energy production, either individually or collectively. Moreover, in contrast to the Third Electricity Directive, the proposed Fourth Electricity Directive does extend the level playing field in generation to the prosumers. Indeed, the proposed Directive entitles active customers to generate electricity 'without being subject to disproportionately burdensome procedures and charges that are not cost reflective'.[103] Similarly, the document provides that when generating capacity installed by local energy communities qualifies as small decentralized or distributed generation, they can benefit from specific authorization procedures which take into account their limited size and potential impact.[104] Thus, the proposed Electricity Directive provides a sort of 'regulatory discount' – special provisions for individual and collective energy prosumers, which ensure that their limited technical and financial capabilities are duly taken into account and do not represent an unjustified market access obstacle. The presence of such special provisions is illustrated with a green check mark in the Figure 1 above.

As the Third Electricity Directive does not acknowledge the prosumers, there are no special provisions related to their wholesale and retail market access. Moreover, individual prosumers are explicitly prohibited from engaging in trade (wholesale) and/ or supply (retail), as final customers cannot be an 'electricity undertaking'.[105] This prohibition is illustrated with a red cross mark in the Figure 1 above. Collective prosumers, however, are free to engage in trade and supply, provided they satisfy all the requirements associated with these roles, on par with the traditional energy traders and suppliers. The absence of special provisions for prosumers means that their smaller size and limited technical and financial capabilities are not considered. Thus, in practice the conditions of wholesale and retail market access for collective prosumers could be prohibitive. Such prohibitive access is illustrated with a yellow check mark in the Figure 1 above.

The proposed Fourth Electricity Directive addresses these shortcomings of the Third Electricity Directive in relation to the wholesale commodity and services market access for prosumers. The proposed Electricity Directive provides that active customers are entitled to access commodity wholesale markets directly or through the aggregators 'without being subject to

[99] See in particular Recital 31, 32 and 35, and Article 7.1 and 7.3 of Directive 2009/72/EC (n3)
[100] See in particular Article 2.2, 2.9, 2.10, 2.11, and 2.19 of Directive 2009/72/EC (n3)
[101] Article 2.6 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[102] Article 2.7 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[103] Article 15.1.a Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[104] Article 16.2.d and Article 8.3 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[105] Article 2.35 Directive 2009/72/EC (n3)

disproportionately burdensome procedures and charges that are not cost reflective'.[106] However, their participation in the wholesale commodity market is restricted to the sale of self-generated electricity, and purchasing electricity for own usage.[107] The situation is similar in relation to the wholesale services access for active customers: They can place bids, 'alone or through aggregation, to sell demand reduction or increase at a price in organized markets'.[108] Moreover, the document states that transmission and distribution system operators procuring ancillary services should treat active customers 'in a non-discriminatory manner, on the basis of their technical capabilities'.[109] However, also in this case, the energy services market access of active customers is restricted to trading their own flexibility. The same restrictions do not apply to the aggregators,[110] or to the local energy communities,[111] as they can trade on the wholesale commodity and services market in an unrestricted manner. It can be concluded that the proposed Electricity Directive entitles the individual and collective prosumers to level playing field access to the wholesale energy commodity and services markets.

The situation is quite different in relation to the retail market access: Regrettably, the proposed Fourth Electricity Directive fails to effectively address the shortcomings of the Third Electricity Directive. In fact, individual prosumers are still prohibited from direct retail market access, as the proposed document does not explicitly mention that active customers are entitled to supply their self-generated electricity.[112] The proposed Electricity Directive introduces a new market actor – an aggregator,[113] and states that 'aggregators are likely to play an important role as intermediaries between customer groups and the market'.[114] Active customers could access the retail market indirectly, through an aggregator. However, the proposed document does not include any special provisions related to the supply role of an aggregator. This means that an aggregator would have to comply with the standard requirements towards energy suppliers, which could be prohibitive. The situation is identical for local energy communities: Whereas the proposed Directive unequivocally states that local energy communities could engage in supply,[115] it does not provide any special conditions regarding retail market access.[116] Thus, it could be argued that the changes introduced in the proposed Electricity Directive in relation to the retail market access for individual and collective energy prosumers are minimal. Indeed, individual prosumers still lack direct access to the retail market, and the access of aggregators and local energy communities remains prohibitive.

The implications of the Third and the proposed Fourth Electricity Directives provisions related to prosumers' market access are discussed in the sub-section below. As discussed in the previous section 0, the Third Electricity Directive currently in force could be assessed from the perspective of regulatory efficiency and disconnection due to the external technological factor. The assessment of the proposed Directive's regulatory efficiency could be performed from the perspective of potential regulatory failure. The two Directives are discussed in turn.

[106] Article 15 and Article 2.6 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[107] Article 2.6 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[108] Article 2.16 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[109] Article 17 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[110] Article 2.14 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[111] Article 2.7 and Article 16 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[112] Article 2.6 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[113] Article 2.14 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[114] Recital 26 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[115] Article 2.7 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)
[116] Article 16 of Proposal for a Directive COM/2016/0864 final/2 - 2016/0380 (COD) (n1)

3. Regulatory Disconnection in the Third Electricity Directive

As noted earlier, the first individual and collective prosumers were active on the European energy market as early as 1980s. However, whereas the Third Electricity Directive adopted in 2009 acknowledges the existence and the importance of the decentralized energy production, it fails to recognize that energy consumers could, in fact, be producers and/ or suppliers and traders of decentralized energy. Such discrepancy points to an evident mismatch between the uses and the business models associated with the respective technology on the one hand, and the regulation on the other hand. Moreover, the Third Electricity Directive does not include energy prosumers in the definitions of producers, traders or suppliers. This is an obvious example of regulatory under-inclusiveness, which signals the presence of regulatory disconnection. [117]

However, regulatory disconnection is not problematic as such, but only when it leads to regulatory failure. This can be established by analyzing the regulatory efficiency of the Third Electricity Directive:

Prosuming energy contributes to all three current pillars of the European energy policy – sustainability, competitiveness, and security of supply.[118] Prosumption adds to reaching the renewable energy production and the energy efficiency goals at both national and European levels, as it often involves measures towards energy savings as well as local sustainable energy supply (e.g. solar panels on the roofs, geothermal energy).[119] The energy prosumers compete on the market with the traditional fossil energy producers, thereby increasing competition. As the renewable energy is generated by the prosumers in the EU, it also contributes to the security of supply. Moreover, the energy prosumers – either individually or collectively – act as 'seedbeds of innovation',[120] and indirectly contribute to such general policy goals as innovation, economic growth and social cohesion.[121] Thus, it can be concluded that energy presuming is a positive and socially desirable innovation.

In assessing the effects of the Third Electricity Directive on the energy market it is important to consider the relationship between EU energy law and the national law of the Member States: Whereas EU sets the floor, the Member States are free to go beyond the minimal requirements in their national legislation. It follows that the deficiency of EU energy law does not necessarily lead to negative outcomes in the market if it is compensated by the Member States. However, this does not seem to be the case in relation to the prosumers' energy market access: For example, whereas the Dutch Electricity Act is more progressive compared to the Third Electricity Directive and recognizes prosumers as market actors, both individual and collective prosumers still lack direct retail market access due to the supplier license restrictions.[122] In such conditions, the absence of market access for prosumers qualifies as an inefficient regulatory outcome, as the Third Electricity Directive does not reach its set goals.

---

[117] Brownsword and Goodwin (n23)
[118] Larouche and Hancher (n89)
[119] Lavrijssen (n36)
[120] Maarten Arentsen and Sandra Bellekom, *'Power to the people: local energy initiatives as seedbeds of innovation?'*, (2014) Energy, Sustainability and Society 4(2)
[121] Client Earth, *Prosumer Rights: Options for a legal framework post-2020* (n10)
[122] Butenko (n12)

4. Regulatory Disconnection in the Proposed Fourth Electricity Directive

The proposed Electricity Directive is striving to address the shortcomings of the Third Electricity Directive and to provide an answer to the challenges that materialized in the energy market due to innovation. As pointed out in section 0 of the current paper, in the 2000s the number of prosumers in the European energy market started increasing significantly, compared to preceding decades. Moreover, due to such developments as smart meters and digital platforms prosumers are enabled to not simply produce energy, but also trade and supply it. To realize full potential of these new technical possibilities, energy prosumers require access to retail and wholesale market for both commodity and flexibility.

As discussed earlier, the wholesale commodity and services market access for individual and collective prosumers is recognized as a desirable and positive development in multiple European policy documents.[123] The same holds for both individual and collective prosumers' participation in the retail market.[124]

However, whereas the proposed Fourth Electricity Directive provides for level playing field access to wholesale commodity and services markets for both individual and collective prosumers, it fails to do so in relation to the retail market. In fact, the conditions of access to the retail market have not significantly improved in the proposed Directive compared to the Third Electricity Directive currently in force. It could be argued that the proposed Directive does not change the status quo. It results in regulatory futility, described as 'no change to the existing problem […] regardless of regulatory intervention'.[125] Such situation qualifies as an inefficient regulatory outcome, and it is commonly associated with regulatory failures. Thus, the problematic regulatory disconnection present in the Third Electricity Directive is only partially addressed by the proposed Fourth Electricity Directive.

V. Conclusions and Recommendations

As stated in the introduction to the current research paper, it has both a primary and a secondary goal. The primary goal is to provide a comprehensive answer to the posed research questions: The first question is whether there is a problematic regulatory disconnection between innovation in the market and the Third Electricity Directive. The second question is whether this disconnection is effectively addressed in the proposed Fourth Electricity Directive. The secondary goal of the research paper is to further the academic discussion regarding the concept of regulatory disconnection. In the current section of the paper the reached conclusions are discussed, and recommendations are provided.

Whereas the primary goal of the current paper is of more applied value, the value of the secondary goal – to further develop the concept of regulatory disconnection – is both fundamental and applied. It is concluded that the law and technology literature is helpful in formulating the characteristics of and the reasons for the occurrence of regulatory disconnection, which could be used to identify the presence of such disconnection in practice. More specifically, regulatory disconnection could manifest as regulatory void or gaps; uncertainty in the application of existing regulations; regulatory over- or under-inclusiveness;

[123] Energy Regulation: A Bridge to 2025 (n47);
Progress towards completing the Internal Energy Market (n48); etc.
[124] Best practices on Renewable Energy Self-consumption (n37)
[125] Baldwin, Cave, and Lodge (n56), p. 73

and/ or regulatory obsolescence. However, this academic stream does not offer guidance in relation to the concrete criteria which could be applied to assessing whether the identified regulatory disconnection is problematic. This academic gap is addressed by the means of applying to the concept of regulatory disconnection the insights from the regulatory theory academic literature. It is noted that regulatory disconnection is not automatically problematic, but rather only in cases when it leads to regulatory failure. The latter could be established by the presence of inefficient regulatory outcomes as compared to regulatory mandate and inadequate cost-benefit analysis of achieving the specified regulatory outcomes. Such analysis relies on the comparison between the original regulatory goals and the achieved results, and is helpful in establishing a retrospective regulatory failure. This approach could be also effectively applied to establishing a prospective regulatory failure in a situation when regulation is drafted in response to innovation. The operationalized concept of regulatory disconnection is thus useful when performing the analysis of the Third Electricity Directive currently in force and the proposed Fourth Electricity Directive.

In relation to the situation on the European energy market, it is observed that energy consumers who were previously limited to the consuming role, are increasingly becoming prosumers of energy. Originally the focus of both individual and collective prosumers has been on local sustainable energy production. However, the focus is slowly shifting to participation in the retail and wholesale markets for commodity and services. The participation of prosumers in the energy markets is an example of user-centered innovation, which has positive consequences for all three pillars of the EU energy policy – competitiveness, sustainability and security of supply.

The analysis of the Third Electricity Directive adopted in 2009 leads to the conclusion that despite providing the level playing field for small and new market entrants, such as producers of decentralized renewable energy, it fails to extend the benefits of equal market access to individual and collective prosumers. There is an obvious under-inclusiveness of prosumers in the definitions of producers and suppliers, and thus regulatory disconnection. This disconnection is deemed problematic from the perspective of inefficient regulatory outcomes as compared to the set regulatory targets (in this case the EU energy policy goals).

Addressing this disconnection is the goal of the Fourth Electricity Directive proposed in 2016. The document introduces separate definitions of individual and collective prosumers, and solves the under-inclusiveness identified in the Third Electricity Directive. Moreover, it contains special provisions related to the producer role of the individual and collective prosumers, which take into account their limited capabilities in comparison to the traditional energy producers. The Directive also guarantees non-discriminatory and cost-reflective access to both wholesale energy commodity and energy services markets for prosumers. In contrast, the conditions for retail market access have not significantly improved in comparison to the Third Electricity Directive, and remain prohibitive. Thus, the proposed document addresses the regulatory disconnection in relation to generation and wholesale market access, but fails to do so regarding retail market access for energy prosumers. It could be concluded that the proposed Electricity Directive only partially reaches its aims, and as such is potentially inefficient.

Whereas the Fourth Electricity Directive is rather detailed, it is still in the proposal stage and could be altered. The regulatory efficiency of the proposed Electricity Directive could be increased by guaranteeing non-discriminatory access to the retail market for individual and collective prosumers, as well as aggregators. Peer-to-peer trading among prosumers on digital platforms is already technically possible in such progressive European Member States as

Germany and the Netherlands, and it is expected to become increasingly demanded by prosumers in the future. Introducing special provisions that guarantee retail market access for prosumers and account for their reduced technical and financial capabilities in comparison to traditional energy suppliers would also contribute to increasing the resilience of the proposed document to the innovation that is expected to materialize in the market. Of course, such provisions would mean an overhaul of the supply licensing regime in the Member States. However, these changes would not be more dramatic compared to the changes necessary to enable the access of individual prosumers to wholesale trading on energy exchanges, that are already introduced by the proposed Directive. Of course, more detailed recommendations regarding the provisions enabling retail market access for individual and collective energy prosumers require further in-depth academic research.