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**Protection of the rights and interests of  
the consumers, the prosumers, and the  
small producers for participating into the  
electricity energy markets.**

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## **Abstract**

This dissertation was written as part of the MSc in Energy Law, Business, Policy and Regulation at the International Hellenic University.

The study will examine the compliance of the Greek Target Model with the European Union legislation. Special attention will be given to the mechanism of “energy communities” and the regulatory issues raised by the conflict between consumption data and production data, as well as the regulatory limits of personal data processing (2016/679/EU). The clean energy transition is a primary goal of the European Union and a legislative framework has already been adopted by the latter, in order to promote its goal. In this direction, the rights of the consumers, the prosumers, the producers and the small producers will be enlightened, with an emphasis on the newly issued institution of the energy communities, as a means of supporting the active citizens’ participation in all energy markets. In addition, there will be an attempt to point out the legal limits up to which the commercial and personal data of the consumers, the prosumers and the small producers should be published by the RES aggregators, in harmonization with the General Data Protection Regulation.

The implementation of the Target Model in Greece is a fact since November 1<sup>st</sup> 2020. Greece appeared to be the struggler in the European Union, concerning the fostering of the unified European model of the electricity market functioning. The incorporation of this framework in the Greek reality was expected to ultimately bring significant benefits for the security and the functioning of the energy market, along with the reduction of costs of energy and the minimization of the greenhouse gases emissions, which are incriminated for the climate disorder. Also, the creation of new types of participants and new transactions among the new actors in the energy field (prosumers, energy communities, peer-to-peer platforms) forced the establishment of new consumer’s rights, which will be mentioned thoroughly. On the other hand, the digitalization of the energy sector may offer new opportunities, while in the meantime it designates the complexity of the publishable data of the several actors, who are to be considered either as consumers or as professional vendors.

Special Honor and Gratitude to my supervisor Professor Theodore Panagos. Honor to Professor of University of Patras Alexios Mpirmpas, because he is the one who introduced me to the energy sector. Also Honor to Professor Evgenia Giannini and Professor Nikolaos Pitsos, who provided me with the information needed for my effort.

**Keywords: Target Model, Prosumers, Energy Communities, Personal Rights, GDPR**

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Specially Dedicated to my  
Husband, Panagiotis Papaioanou,  
for his endless love and support.



## Contents

<b>ABSTRACT.....</b>	<b>III</b>
<b>CONTENTS .....</b>	<b>3</b>
<b>INTRODUCTION.....</b>	<b>4</b>
<b>1. LEGAL FRAMEWORK-ENERGY TRANSITION AND THE GREEK TARGET MODEL .....</b>	<b>6</b>
1.1. THE EUROPEAN LEGAL FRAMEWORK REGARDING ENERGY .....	6
1.2. EUROPEAN POLICY TOWARDS ENERGY TRANSITION.....	7
1.3. THE TARGET MODEL.....	10
<b>2- THE RIGHTS OF THE CONSUMERS, THE “PROSUMERS” AND THE SMALL PRODUCERS UNDER THE DIR. 2019/944 AND THE INSTITUTION OF ENERGY COMMUNITIES. ....</b>	<b>13</b>
2.1 THE “NEW” CONSUMER RIGHTS AND THE NEW STATUS OF THE PROSUMER PROVIDED BY THE DIR. 2019/944 .....	13
2.2 THE INSTITUTION OF THE ENERGY COMMUNITIES .....	17
<b>3 - THE COMMERCIAL AND PERSONAL DATA OF THE CONSUMERS, THE PROSUMERS AND THE SMALL PRODUCERS THAT IS ALLOWED TO BE PUBLISHED BY THE RES AGGREGATORS IN ACCORDANCE TO GDPR.</b>	<b>24</b>
3.1 BRIEF REVIEW OF THE LEGAL FRAMEWORK CONCERNING DATA PROTECTION IN EUROPE.....	24
3.2 DATA PROCESSING IN THE ENERGY FIELD .....	26
<b>CONCLUSION.....</b>	<b>30</b>
<b>BIBLIOGRAPHY .....</b>	<b>32</b>

## Introduction

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The ambitious aim of Europe to become the leader in the Energy Transition and consequently the leader in the fight against climate change is supported by a set of rules, the European legal framework, through which the energy transition is to be delivered. The matter of the implementation of the Target Model in Greece, as a means of materialization of the vision of a common European energy market, and whether it (target model) complies with the European Directives and Regulations as far as the integration of electricity markets in the EU is concerned is to be studied. The Target Model is implemented in order to create a common European internal market in the energy sector, which will lead to balanced supplies of energy, reduced energy cost for final customers and strong incentives for investments in the energy sector<sup>1</sup>. As the participation of the active citizen in the energy transition is paramount, the European legislation focuses on the prosumers and the energy communities, as a means of accelerating the energy transition from using fossil fuels to cleaner forms of energy and achieving its goals against climate change and environmental degradation. Under this scope the rights and interests of the consumers, who can be producers at the same time, the small producers and the members of an energy community can be challenged in multiple ways, as the boundaries of the classification between the producer and the consumer can sometimes be blurry. At the same time, another emerging challenge is the harmonization with the General Data Protection Regulation (GDPR) of the publishable personal and commercial data of the participants in the energy markets.

The first chapter begins with a brief presentation of the importance that E.U. attributed to the energy sector, since its first institution, both in the primary and the secondary legislation, up to the formulation of the current European legal framework, the Dir. 2019/944 and the Dir. 2018/2001, which constitute the spine of the Energy Policy called “Clean Energy for all Europeans”, a.k.a. Clean Energy Package (CEP). In order to proceed with this policy, Greece lagging in any case in these proceedings, Member States (MS) gradually entered a unified energy market hoping to reinforce their economies and societies by promoting technological innovation in favor of the sustainability. It has only been a year since Greece adopted the Target Model (01-11-2020) in relation to the vision of a common European energy market that will simultaneously assist the aim of keeping the global temperature rise well below 2

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<sup>1</sup> *Metaxas, A./ Mathioulakis, M./Lykidi, M.*, Target Model Implementation and the Role of New Investment in Market Coupling Infrastructure, 2020

degrees Celsius above pre-industrial levels, which is respectively the target set by the Paris Agreement.

The second chapter provides a presentation of the status of small producers of energy that are also consumers of energy, the so called “prosumers”, and the relatively newly introduced institution of energy communities, having been set in the center of the interest of the European legislator. The engagement of the citizens in the energy market and in the battle against the factual threat of the augmentation of the greenhouse effect and global warming is considered to be crucial and indispensable, in other words active citizens’ participation is considered a *sine qua non condition*. From this point of view, the enhanced rights of the consumers, the prosumers and small producers will be highlighted, in an attempt to underline the new rights active participants will enjoy under the provisions of the European legislation, as well as the rights of the institution of energy community.

The third chapter provides a brief reference to the contradiction between the data that can be published, namely by the RES Aggregators, and the data that are protected by the GDPR. This contradiction results from the traditional perspective of a citizen as just a simple customer/consumer, which is nowadays considered obsolete, as the status of the consumer can now be combined with this of a producer of energy. In this direction the draw line between personal and commercial publishable data could become rather indistinguishable, therefore there will be an attempt to apply the provisions of the General Data Protection Regulation (GDPR 2016/679) to this perplexed arrangement.



# 1. Legal Framework-Energy Transition and the Greek Target Model

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Though the legal framework regarding the energy sector is known, however a brief reference about its route is quite useful. The short review will concern the specific matter of energy and the ratio of the European Legislator.

## 1.1. *The European Legal Framework regarding energy*

Energy has been a pillar of the European Policy since 1951, when the European Coal and Steel Community (ECSC) Treaty formed the first common “energy” market, nevertheless extremely specialized, which was very quickly overrun by the prevailing cheaper oil market. Similar has been the route of EURATOM (European Atomic Energy Community-1957) Treaty, which held in its political agenda energy issues-in particular the creation of an atomic energy market, which was doomed to fail due to the significant lower oil prices, as well as the devastating dangers caused by certain nuclear power accidents.

However, it is in the Maastricht’s convention where we come across for the first time explicit articles concerning the Energy Sector and the trans- European networks <sup>2</sup>, though there is no reference to the need for a common energy policy undertaken by the MS. The articles 194 and 170 of the Treaty of Functioning of the European Union (TFEU), representing the Primary European Law, have acted as the legal base for the structuring of the energy policy in Europe, explicitly setting the objectives of an internal energy market, marking in the forefront the environmental sustainability, along with the establishment and development of trans-European networks in energy infrastructures among others. The “achievement of an internal market” has been a key European policy goal since 1986<sup>3</sup>. On these grounds, the E.U. published Regulations and Directives, which form the Secondary law, to implement its Energy Policy and the respective principles, concerning the functioning of an internal market, the security of energy supply, the environmental protection by introducing energy efficiency and saving and the development of new and renewable forms of energy as well as the promotion of the interconnection networks<sup>4</sup>.

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<sup>2</sup> art. 3 and 154 Treaty of European Union (TEU)

<sup>3</sup> *Jean-Michel Glachant* , Tacking stock of the EU “Power Target Model”... and steering its future course, 2016

<sup>4</sup> art. 194 TFEU

Since neither the Maastricht's convention nor the Nice Convention included new provisions regarding the functioning of an internal European market, the European energy law was almost exclusively enriched by rules of secondary legislation, targeting to the liberation of energy with the respected packages. Since 1996, the secondary legislation has been focusing on setting rules for an internal market with three successive packages. The first package included the Dir. 96/92/EC regarding the common rules for an internal electricity market and the Dir. 98/30/EC regarding the common rules for an internal gas market. The second package, which was focusing on a further reinforcement of the functioning of the electricity market, included:

- 1) the Dir. 2003/54/EU concerning common rules for the internal market in electricity and repealing Directive 96/92/EC,
- 2) the Regulation (EC) 1228/2003 on conditions for access to the network for cross-border exchanges in electricity,
- 3) Directive 2003/55/EC of the European Parliament and of the Council concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC,
- 4) Regulation (EC) No 1775/2005 on conditions for access to the natural gas transmission networks and
- 5) The 2003/796/EC Commission Decision on establishing the European Regulators Group for Electricity and Gas.

The third package concerning the energy market, which includes the Dir. 2009/72/EC and dir. 2009/73/EC, is considered the milestone for the fulfillment of the electricity and gas market, due to the “unbundling” rules set out, separating clearly the network activities from the production and supply activities. It also includes matters of consumers’ protection, especially the obligation of the MS to protect vulnerable customers, the obligation for transparency on the billing, the obligation for the institution of an Alternative Dispute Resolution mechanism in the energy sector and the establishment of a monitoring mechanism “the European Union Agency for the Cooperation of Energy Regulators” (ACER)<sup>5</sup>.

## **1.2. European Policy towards energy transition**

Europe and the rest of the world is actually facing the existential threat of Climate change and environmental degradation. By structuring the Green Deal Policy, the E.U. is aiming at shifting to a fairer and more prosperous society, with an up to date, self-sufficient and competitive economy. The vision is to establish a society that will refrain

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<sup>5</sup> Ασπασία Αλιγιζάκη, Ενεργειακή Πολιτική και Δίκαιο της ΕΕ, 2018, pp.46-52

from Greenhouse Gas emissions by the year 2050 and will not connect its economic development to resource exploitation<sup>6</sup>. The E.U. has a central role in the United Nations' negotiations concerning climate. In 2015, the E.U. ratified the Paris Agreement, the first international agreement against climate change with a goal to reverse the climate change, committing to reduce the greenhouse gas emissions to least at 40% of the levels of 1990 until 2030. Furthermore, the E.U. within the context of European Green Deal Policy, is aiming at producing zero emissions by 2050, implementing several measures to achieve this goal, and repeated its commission to fight against climate change once again in COP26<sup>7</sup> summit, which took place in Glasgow in November 2021. The Green Deal is basically a roadmap for Europe to become a climate-resilient society by 2050, including an agenda with a wide range of goals, such as the protection of biodiversity, the support of "green" investments, the support of the industrial sector to achieve an energy transition and the respective protection of the employers, who will bear all the socioeconomic impact of the energy transition.

From that point of view, the European legal framework sets out new rules that emphasize on the use of Renewable Energy Sources (RES) with the parallel fortification of the consumer's role, either on an individual or a collective level<sup>8</sup>. The most recent European legislation to realize the aforementioned energy policy of the energy transition from the hostile fossil fuels to a future energy system that promotes affordability of energy and environmental sustainability, consists of two Directives:

1. Dir.2018/2001- *Renewable Energy Directive* (RED II). This Directive sets a binding target of 32% participation from RES in the EU's energy mix by 2030. It also includes provisions for mainstreaming RES in the transport and heating & cooling sectors, while it sets criteria for sustainability and reduction of the greenhouse gas emissions for bio-fuels, bio-liquids and biomass fuels. In addition to establishing a Union framework for the promotion of energy from renewable sources, this Directive also contributes to the potential positive impact, which the Union and the Member States can have in boosting the development of the renewable energy sector in third countries [(42) Dir.2018/2001] and

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<sup>6</sup> Bauwens T/Huybrechts B./Dufays F., Understanding the Diverse Scaling Strategies of Social Enterprises as Hybrid Organizations: The case of Renewable Energy Cooperatives, 2019 pp.4-7

<sup>7</sup> COP26 is the most recent annual UN climate change conference

<sup>8</sup> G.Cotella/S.Crivello/M.Katarayev, Low-Carbon Energy Security from a European Perspective,2016, pp.13-42

2. Dir.2019/944-. The Directive sets common rules for the generation, transmission, distribution, supply and storage of electricity. It also includes provision over consumer empowerment. In addition, the market design Directive sets provisions for distribution system operators' flexibility procurement, protecting at the same time the consumers and structuring a more competitive, fair, integral, citizen centered energy market. The amended Union's Direction about electricity (2019/944), introduces significant changes concerning the issuing and the context of the billing, with a view to the fortification of the consumer's part. These changes are of utmost importance, as the energy sector is part of a digital era, thus dynamic billings and new services and products will have an impact on the context of the bills. Briefly, the new Directive, underlines the importance of the MS effort to facilitate the final consumers on three fundamental issues:

- a) gain control of their energy consumption,
- b) be able to compare products among alternative ones and
- c) be able to have the energy supplier of their choice<sup>9</sup>.

The above legislation forms a part of the Clean Energy Package (CEP)<sup>10</sup>. The CEP is a set of rules, presented by the European Commission on November 2016, aiming at the secure, sustainable, competitive and affordable energy for all consumers<sup>11</sup>. The package is designed to become the legal vehicle of the energy transition away from fossil fuels towards cleaner energy and to actualize the EU's Paris Agreement commitments, that is the reduction of greenhouse gas emissions, while ensuring affordable, secure, and sustainable energy for its citizens, updating the following EU targets for 2030. It is the European Union's policy to designate itself as an International Leader in the sector of Renewable Energy Sources and help the latter meet its commitments, as pointed out in the Paris Agreement, namely the following:

- 40% cut in greenhouse gas (GHG) emissions compared to 1990 levels
- 32% for renewable energy sources (RES) in the EU's energy mix

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<sup>9</sup> Νεκταρία Καρακατσάνη, Πληθώρα προϊόντων στα διμερή συμβόλαια για τις ανάγκες παραγωγών και καταναλωτών, energypress.gr ,2021

<sup>10</sup> <https://fsr.eu.eu/the-clean-energy-for-all-europeans-package/>

<sup>11</sup> idem

- 32.5% energy efficiency target, relative to a baseline scenario established in 2007<sup>12</sup>.

### **1.3. The Target Model**

The first step to realize this goal and surpass the above mentioned challenges is the unification of the energy market. In order to achieve this aim, two parameters are required:

- a) the unification of the Markets and
- b) the unification of the networks.<sup>13</sup>

In the European Council's conclusions of 23 and 24 October 2014 on the '*2030 Climate and Energy Policy Framework*', the European Council stressed the importance of a more interconnected internal energy market and the need for sufficient support to integrate ever increasing levels of variable renewable energy, and thus, allow the Union to fulfill its leadership ambitions for the energy transition. It is therefore important and urgent to increase the level of interconnection and to make progress towards the European Council's objectives in order to maximize the Energy Union's full potential<sup>14</sup>. The merge of the energy markets of all MS of the Union is considered to be the cornerstone of carbon neutralization, energy security supply, development of competition and economic growth in favor of the consumer<sup>15</sup>. The European Target Model is based on the Framework Guidelines published by the European Union Agency for the Cooperation of Energy Regulators (ACER), and the Network Codes published by the European Network of Transmission System Operator (ENTSO-E), which are approved by the European Commission, with a view to harmonize the rules on cross-border trade of electricity and the functioning of the wholesale electricity markets.

Under the Target Model's implementation, four distinct wholesale Markets are established:

- 1) The Day-ahead market (DAM),
- 2) The Intra-day market,
- 3) The Balancing market and

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<sup>12</sup> idem

<sup>13</sup> Βασίλης Καραγιάννης «Εισαγωγή του Target Model στην Ελληνική αγορά ηλεκτρικής ενέργειας: Τα μείζονα νομικά και οικονομικά διακυβεύματα», energypress.gr, 2020

<sup>14</sup> art.20 Dir.2018/2001

<sup>15</sup> [Europarl.europa.eu/factsheets/el/sheet/45/marche-interieur-de-l-energie](http://Europarl.europa.eu/factsheets/el/sheet/45/marche-interieur-de-l-energie)

#### 4) The Forward market.

Referring to the Greek reality, the actual Greek Target Model of the electricity market fully complies with the European Target Model. The liberalization of the internal Greek electricity market, followed by the coupling of the national markets of the neighboring states of Italy and Bulgaria, which falls into the framework of the unification of the networks, focuses on realizing the five objectives of the European energy policy:

- energy security,
- internal energy market,
- energy efficiency,
- decarbonization and
- research, the innovation and the competitiveness. All this will eventually lead through a fair and just way to the transition to a new energy system with limited CO2 emissions.

The Target Model, being chosen as the unified model of the wholesale market, was firstly implemented in Greece in November 2020, while all the rest MS had already fostered it during the previous decade. It came as a major reform in the Greek reality, and marked the pave way to the transition to a new era of using cleaner energy in the whole continent of Europe. The Greek Law 4512/2018 integrated the Dir. 2018/2001 into the Greek legal framework and defined the following markets:

1. The Wholesale market. This market allows the participants to enter into contractual contracts of electricity, with the obligation of physical delivery.
2. Day-Ahead Market. This market allows the participants to submit contractual orders with the obligation that electricity is to be delivered physically the following day. In the Day-Ahead Market the amount of energy, engaged through accomplished forward contracts, is declared. In addition, an implicit allocation of the interconnections' capacity will take place, through the coupling of the Day-Ahead Markets of the other European States.
3. Intra-Day Market: This market allows the participants to submit contractual orders with an obligation to physically deliver the traded product, and helps to secure the necessary balance between supply and demand <sup>16</sup>. This market functions in a supplementary way towards the Day-ahead Market.
4. Balancing Market: the participants are committed, through contracts, to make the entire capacity available to cover the balance. The purpose of this Market is

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<sup>16</sup> Th. Panagos, The Unbundling In the Energy Sector Companies, 2011

to keep the supply and demand in balance at any time, because the electricity has non-storage status<sup>17</sup>.

The functioning of the above mentioned first three markets has been awarded to the Hellenic Energy Exchange (HENEX), while the Balancing Market is a part of the Independent Power Transmission Operator's (IPTO/ADMIE) jurisdiction exclusively.

The unified energy market, which is already a fact, enables the negotiability of the electricity, the electricity being considered as any other commodity.

The ultimate goal is the reduction of the cost of energy for the final consumer (households, industry, enterprises), with the creation of a unified, coupled European energy market, where the producers and the suppliers will be able to participate in the markets with several products and also negotiate future contracts in the Forward market with an ability of physical delivery<sup>18</sup>.

As far as the Greek Target Model is concerned, its implementation according to the above mentioned European legislation, facilitated the organization and functioning of the energy sector, followed by the reinforced protection of the consumers' rights, the free access to the market, the third party access to the distribution infrastructures, the unbundling rules and the independence of the National Regulatory Authority (NRA)<sup>19</sup>.

The implementation of the Target Model in Greece, in addition to the coupling of the Greek Market with the European ones, is expected to have a positive long-term impact on the energy markets<sup>20</sup>, such as the developed competition in an international level, convergence of the prices, assurance of the secure supply of energy and support of penetration and use of the renewable energy sources in the network<sup>21</sup>.

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<sup>17</sup> See Panagos, 2011

<sup>18</sup> Pandelis N. Biskas/ Ilias G. Marnieris/ Dimitris I. Chatzigiannis/ Christos G. Roumkos/ Anastasios G. Bakirtzis/ Alex Papalexopoulos, High-level design for the compliance of the Greek wholesale electricity market with the Target Model provisions in Europe, Electric Power Systems Research, Volume 152,2017,pp 323-341, 2017

<sup>19</sup> Ευγενία Τζαννίνη, Η Νέα Ενωσιακή Οδηγία (ΕΕ) 2019/944 για την Εσωτερική Αγορά Ηλεκτρικής Ενέργειας και ο Ρόλος του Ενεργού Πελάτη, 2021

<sup>20</sup> Angeliki D. Mourtzikou, The implementation of the Electricity Target Model in Greece", Director of Markets Monitoring and Competition, RAE, 11-09-2018

<sup>21</sup> Βασίλης Καραγιάννης «Εισαγωγή του Target Model στην Ελληνική αγορά ηλεκτρικής ενέργειας: Τα μείζονα νομικά και οικονομικά διακυβεύματα», energypress.gr, 24-11-2020

## **2- The rights of the consumers, the “prosumers” and the small producers under the Dir. 2019/944 and the Institution of Energy Communities.**

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The entrance of “new” actors in the energy field demands a readjustment of the rules and a provision of incentives or rights to the new actors. The equilibrium in the energy has already started to change and so has the respective legal framework.

### ***2.1 The “New” consumer rights and the new status of the prosumer provided by the Dir. 2019/944***

The Dir. 2019/944 revised and amended the Dir. 72/2009 (art. 37, art. 41) and set out the common rules for the internal market for electricity, along with the Regulation 943/2019, so as above mentioned, to point out the will of the European legislator and the need of the European reality for a more consumer-centered electricity market.

Therefore, this Directive focuses on the issues of organization and functioning of the electricity sector throughout the whole Europe, in particular the enhancement and protection of the consumer’s rights and the empowerment of the energy community institution.

More specifically, the Dir. 2019/944 designates the meaning of the notions :

1. of the active consumer,
2. the energy community,
3. the dynamic billing,
4. the smart metering and
5. the storage of energy.

In that sense, the engagement of the active participants in the energy system, a.k.a. the phenomenon of prosumerism, is defined as the active energy citizens who are producing, self-consuming, or storing energy, and/or participating in energy markets by selling or sharing their energy, either individually or collectively, for example as part of an energy community<sup>22</sup>. In other words, a “prosumer” is the small producer or self-consumer who can actually get involved in the energy field, through the implementation of the Target Model. The energy can be either produced or stored in the prosumer’s own property or these activities can actualize in a place that does not belong to the prosumers. Also, the prosumers are able to sell or share the self-produced electricity with the network. The active final consumer that consumes the

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<sup>22</sup> L.Horstink/JM Wittmayer KNg, Pluralising the European Energy landscape : Collective renewable energy prosumers and the EU’s clean energy vision, 2021



electricity produced by themselves, forming the alternative type of a market actor, is now acknowledged by the CEP as “prosumer” and is able to participate in energy efficiency programs, if proof is provided that such an activity is supplementary to the professional or commercial one<sup>23</sup>. Additionally, according to the provisions and the definitions of the above directive, the final consumer has now the option to be charged by using smart meters.

While the charging prices can vary from time period to time period, the consumer can now take advantage of these variations by concluding a dynamic contract. Moreover, the notion of energy storage is paramount in order to meet the goal of having flexibility in the near electricity future. According to the directive’s provision, the definition of energy storage includes the postponement of the use of energy or the transformation into another form of energy that can easily be stored and be transformed to electricity again for the final use of it<sup>24</sup>. Furthermore, a definition of the “energy communities” is provided in the same directive, being the legal entities, whose members are citizens and/or local authorities that freely want to cooperate in an energy-sector related activity based on open and democratic participation and governance, so that the activity can provide services or other benefits to the members or the local community. In this sense, energy communities represent a new type of market participant and a rather different way or philosophy to do business. The primary goal of energy communities is to create social innovation - to engage in an economic activity with non-commercial aims <sup>25</sup>. The energy communities can be active in the sectors of energy production, transmission, distribution and supply of electricity, along with the services of consuming, aggregating and storage.

The notion of the active final consumer, who can be simultaneously a self-producer, was firstly presented in the Dir. 2018/2001 with the term of “self-consumer”, referring to the use of energy produced exclusively by RES. Likewise, the notion of Energy Communities, according to the same Directive, was presented as Renewable Energy Communities, due to the exclusive use of renewable energy sources. The different definitions in the two Directives are similar, but not totally consistent.

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<sup>23</sup> art. 2, Dir. 2019/944

<sup>24</sup> idem

<sup>25</sup> REScoop.eu's report on 20-20-20 Intelligent Energy Europe project, *The energy transition to energy democracy*, Antwerp, 2012-2015, Available at: [http://enercommunities.eu/wp-content/uploads/2018/07/Energy-democracy\\_REScoop.be-%CE%98%CE%95%CE%9F%CE%94%CE%A9%CE%A1%CE%91-%CE%A4%CE%A3%CE%A9%CE%9A%CE%9F%CE%A5.pdf](http://enercommunities.eu/wp-content/uploads/2018/07/Energy-democracy_REScoop.be-%CE%98%CE%95%CE%9F%CE%94%CE%A9%CE%A1%CE%91-%CE%A4%CE%A3%CE%A9%CE%9A%CE%9F%CE%A5.pdf)

In the past the legislators of all MS used to think of citizens as passive electricity consumers per se. By introducing the European internal energy market, which overran the national dominant monopolies, the challenge to deliver better services at lower prices became more apparent. But, the parameter of decarbonization of the energy sector, which the E.U. put on the table, drove up the prices. In order to restore the balance, the citizens were offered a chance and a challenge; instead of remaining in the traditional status of the passive consumers and be doomed to carry all the burden of the expensive energy transition, to become active players by producing their own electricity, by engaging in peer-to-peer trade or by joining energy communities<sup>26</sup>. Therefore, the provisions of the Dir. 2019/944 not only enable the citizens to maintain the status and the protection of the consumer, but they enable them to adopt the status of the producer.

The Dir. 2019/944 envisaged a status of a consumer, who is also a producer, but not necessarily a RES producer as the previous Directive 2018/2001 provided. It introduced the notion of the “prosumer” and took a step forward to address empowered rights to the new energy actor. The rights could be divided into two sub-categories : a) the rights of better information and b) the rights of power that can be addressed both to consumers and producers.

Beginning with the art.10, which refers to the “Basic contractual rights” that concern every part in the Energy equation, the Directive focuses on precontractual and transparent information but also on information about the contract duration, or the prices and the respective various payment methods and the in time information on possible changes in the conditions or even information about complaint management, insisting namely on the clarity, transparency and ability to comprehend the terms in the consumer’s favor<sup>27</sup>.The details of the contract are the safenet both for the consumer, who is protected against the powerful supplier, but also for the “prosumer” or the small producer, who may face the concurrence and the malfunctions of the energy markets.

In the first category of the “better information” rights, we can place the rights addressed in the articles 11, 14 18 and 19.The provision about the contracting of “*Dynamic Electricity contracts*” that will reflect the price variations will further promote the whole notion of upscaled information. The supplier is obliged to explain to the consumer the risks and the gain of such a contract with transparency before the final conclusion. Furthermore, the supplier is obliged to inform the customer about the need to install a smart meter, if the customer wishes to enter into a Dynamic contract.

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<sup>26</sup> Leonardo Meeus, The evolution of electricity markets in Europe,2020

<sup>27</sup> Florian Pichler, Consumer protection in the Clean Energy Package, 2020

Also, it is very important that the Directive has established a right for the consumer to obligatorily have free access to at least one “*Comparison Tool*” regarding the suppliers’ offers and the Dynamic contracts. These comparison tools shall be provided by the MS at the final consumer and will be operated by any entity, including private companies and public authorities or bodies. They will function in an independent way towards the energy participants. The tools will act as the reassurance that there will be fair and equal treatment to all the participants and also through these tools transparency will be achieved as the article provides with the obligation to submit certain data with clarity, especially referring to the criteria being used to form the comparison of the suppliers’ offers. Finally the comparison tools have to be easily accessible by disabled people, requiring the less possible personal data in order to accomplish the comparison.

The Directive also foresees the very significant right of getting “*Bill and billing information*”. The consumer is entitled to receive a bill, either in electronic form or by mail, for free in a comprehensible, non-misleading language. In this case, the suppliers must give information to the customer as for the electricity sources and the consumption in every bill, information about future changes and the actual date these changes will take place.

The right to have access to *data via digital smart meters* and manage better the electricity consumption is now introduced. The installation of smart meters systems shall accurately measure the actual electricity consumption and shall be capable of providing to final customers information on actual time of use. MS ought to reassure and secure the implementation of the smart metering, without though having the obligation to fund them, should the cost-benefit assessment come out negative. In the second category of the rights of power we can place the fundamental right of the third party access, the right to switch the supplier, the right to find demand-response schemes and the right to engage into an energy community. The art. 6 is all about the MS’ obligation to guarantee the *third party access* to all the systems of transmission and distribution, which refer to all the consumers in an objective and non-discriminating way. So, in order for anyone to participate in the energy field, one must comply with access to the network rules as well as with the access to the market rules. The regulatory authorities should be the ones to pave the way to prosumers into the network. The provision of the *right to switch the supplier* and the respective switching fees is also fundamental. This provision sets a timetable of three weeks at most for a consumer to complete the switching procedure, as long as the consumer respects the contractual terms and there is a provision of not implying any charging switching fees,

at least for the households and the small enterprises, but at the same time the contract termination fees are not prohibited.

Another significant provision attributes the consumer with the right to find “*demand response schemes*” through aggregators and therefore co-exist with producers in every electricity market in a non-discriminatory way and most importantly without being suspended to the approval of the rest of the participants. The Transmission System Operators along with the Distribution System Operators are obliged to treat every energy actor equally, implying a set of objective, fair and transparent rules according to each participant’s technical capability. This article supports furthermore the consumer’s participation and basically promotes the flexibility in the electricity system through the demand-response schemes<sup>28</sup>.

## **2.2 The Institution of the Energy Communities**

The final, but most significant, consumer’s right empowerment has been addressed within the article 16, which forms an almost new type of actor in the energy field, the “*Citizens Energy Communities*” (CEC). The Clean Energy Package (CEP) contains two definitions of energy community: Citizen Energy Community (CEC) which is contained in Directive (EU) 2019/944 (recast Electricity Directive), and Renewable Energy Community (REC), which is contained in Directive (EU) 2018/2001 (the recast Renewable Energy Directive). They are similar, but not totally consistent. Both of these definitions are framed as a particular way to organize collective action around a particular energy-related activity – namely through a legal entity. Specifically, energy communities organize around specific ownership, democratic governance and a non-commercial purpose (as opposed to traditional market actors). The Directive 2018/2001 firstly introduced the institution of ‘Renewable Energy Community’ (REC) as a legal entity, which 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. The shareholders or members of a REC are natural persons, small or medium sized enterprises (SMEs) or local authorities, including municipalities and the primary goal 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 by using renewable energy sources exclusively.

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<sup>28</sup> Energy Communities – Available at: [https://ec.europa.eu/energy/topics/markets-and-consumers/energy-communities\\_en](https://ec.europa.eu/energy/topics/markets-and-consumers/energy-communities_en)

According to the Dir. 2019/944<sup>29</sup>, the CEC is similar to the REC, but there are some differences. While the REC is defined to generate energy by renewable energy sources exclusively and is also obliged to be controlled by members whose location is proximate to that of the REC the CEC has an unlimited scope of usable energy sources and as for the control, it lacks of any proximity limitations. Also, the CEC can engage in a lot more energy sector activities than a REC, for example the generation, distribution, supply, consumption, aggregation, storage, energy efficiency services or charging services for electric vehicles, or provide energy services to its members or shareholders. However, the two types of energy communities share a lot of commonalities. MS will form the appropriate legal framework for the implementation of the CEC, but there shall be some common rules with the REC.

Beginning from the form of the legal entity, which can either be an association, or a partnership, a non-profit organization, a cooperative, even a small/medium-sized enterprise, it is obvious that the energy community can take any form of legal entity. The purpose is to give the citizens more incentives and facilitate them to engage in the energy field along with the other market players.

Secondly, it is the membership structure of the legal entity, which albeit not identical in every form, still it underlines the democratic character of the participation and therefore it shall be open and voluntary. The CEC excludes the large and medium-sized enterprises from effective control, while the REC does not include large enterprises. However, the engagement in an energy community will not minimize the pre-existing rights and obligations of household customers or active actors, while a member's way out of it will meet no legal barriers at any time.

The main reason for establishing an energy community is to cover the energy needs of its members, but also cover the needs of the vulnerable consumers, who reside in the same district the energy community is located, by implying for example the virtual net metering, as there is no proximity limitation of the energy project required<sup>30</sup>. In this way, the institution of the energy community incorporates the will of the European legislator to fight against energy poverty, support the vulnerable customers-households and in general provide environmental, economic or social community benefits rather than generate financial profits<sup>31</sup>. It is fundamental that the purpose of the activities of an energy community reflect the notion of collective economy and be

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<sup>29</sup> art. 16 Dir. 2019/944

<sup>30</sup> Ευγενία Τζαννίνη, Η Νέα Ενωσιακή Οδηγία (ΕΕ) 2019/944 για την Εσωτερική Αγορά Ηλεκτρικής Ενέργειας και ο Ρόλος του Ενεργού Πελάτη, 2021

<sup>31</sup> *Dorian Frieden/Andreas Tuerk/Josh Roberts/Stanislas d' Herbemont/Andrej Gubina* Overview of emerging regulatory approaches in Europe, 2019

value driven, with an emphasis on not going after financial profits as a priority but rather reflecting the consideration that no one is left behind.

The last commonality is that the actions of an energy community are collective. Emphasis is given on the way to organize an activity-not the activity itself <sup>32</sup>. In other words, the RECs and the CECs are defined and framed in the Clean Energy Package primarily as a way to organize cooperation between citizens rather than a specific technical activity<sup>33</sup>.

The art. 16 of the Dir. 2019/944 defines several types of activities that a citizen energy community is able to carry out, for instance “the sale, including resale of electricity to customers” or “the sharing of electricity”. The sharing of energy is also met in the REDII provisions, stating that “Renewable energy communities should be able to share between themselves energy that is produced by their community-owned installations”.

In addition, the Citizen Energy Communities will be able to participate in cross-border energy transactions, while they will also have the right to establish, purchase or lease distribution networks. At the same time, the Directive provides that the CECs can have access to energy markets either directly or through aggregators and are treated in a non-discriminatory and proportionate manner with regard to their respective activities, while they will be responsible for possible imbalances they cause to the system. Finally, when a CEC is given the right to operate a local distribution system, it shall be able to conclude an agreement on the operation of their network with the relevant distribution system operator or transmission system operator to which their network is connected, under the assumption that there will be no discrimination or harm to customers who remain connected to the distribution system. It is crystal clear that involving citizens is the only way to make the energy transition succeed. This means we must move from a centralized, oligopolistic energy system to one that is decentralised and above all democratically controlled and operated<sup>34</sup>.

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<sup>32</sup> See *Dorian Frieden et al.*

<sup>33</sup> REScoop.eu’s case summary, *What Member States should know when designing support schemes for energy communities: the example of Ireland*, Brussels, 2021, Available at: <https://www.rescoop.eu/toolbox/what-member-states-should-know-when-designing-support-schemes-for-energy-communities-the-example-of-ireland>

<sup>34</sup> REScoop.eu’s report on 20-20-20 Intelligent Energy Europe project, *The energy transition to energy democracy*, Antwerp, 2012-2015, Available at: [http://enercommunities.eu/wp-content/uploads/2018/07/Energy-democracy\\_RESCoop.be-](http://enercommunities.eu/wp-content/uploads/2018/07/Energy-democracy_RESCoop.be-)

In Greece, the energy communities are already activated in the energy sector, mainly by RES producing in the non-interconnected islands. Such an example is the Energy Community of Sifnos island, which envisions to install a hybrid electricity production station that will consist of an wind park along with a hydroelectric one making use of the sea water <sup>35</sup>. Although the institution of the Energy Community is already a part of Greece's national law, adopted in L. 4513/2018 and plays a major role in dealing with the energy poverty and the promotion of the use of RES in parallel, there is still space for optimization with the incorporation of the Directive 2019/944 into the Greek Law.

The Greek legislative framework is formed by the provisions of Law 3468/2006, which was amended by the L.4203/2013, L.4414/2016, L.4685/2020 referring to the enhancement of self-production and the L. 4513/2018 introducing the institution of energy community in Greece.

Firstly, the Law 3468/2006 developed and defined the framework of promoting the production and use of electricity by renewable energy sources. On this basis, several amendments took place regarding the embodiment of the notion of self-production and apparently the enforcement of the part of the active consumers and consequently the institution of Energy Communities. The art. 6 L. 4203/2013 amended the Law 3468/2006 by giving the self-producers the possibility to install photovoltaic projects and small wind generators. According to this provision, it is permitted to install RES projects, as well as storage systems of the energy produced by self-producers, in order for them to cover their own energy needs by implementing net metering. As for the self-producers that are public or private legal entities with a non-profit economic activity, there is a special provision that the installation as mentioned above is also permitted to cover their self-consumption by the implementation of net metering.

Consequently, Law 4414/2016 introduced the definitions of net metering and virtual net metering in the article 2 of the Law 3468/2006, defining that net metering is the offsetting between the energy generated by the photovoltaic panels and the energy that is consumed, while virtual net metering is the offsetting between the energy generated by the photovoltaic panels and the energy that is consumed but there is no restriction that the energy production installation must be at the same place with the consumer's installation, as happens in the net metering.

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[%CE%98%CE%95%CE%9F%CE%94%CE%A9%CE%A1%CE%91-%CE%A4%CE%A3%CE%A9%CE%9A%CE%9F%CE%A5.pdf](#)

<sup>35</sup> *Τίνα Κουτσοπούλου*, Οι ενεργειακές κοινότητες στην Ελλάδα: Νομικό Πλαίσιο και Προοπτική Ανάπτυξης, ενέργεια και δίκαιο, τεύχος 26/2017

Finally, the legal framework concerning the Energy Communities in Greece is primarily based on the Law 4513/2018, as has been amended and is in force. In this context, the latter (Law 4513/2018), which was amended by the Law 4618/2019, concerning the Energy Communities, is very important, because it sets the framework in order to develop the citizens' and local authorities' cooperation to fight against energy poverty and reinforce the easier acceptance and embracement of the new technologies by the citizens. The energy communities are able by law to carry out several activities of the energy sector, for example the distribution and supply of electricity and natural gas to the final consumers, but they are also attributed the right to administer new technologies that are expected to be developed in the near future, such as the electricity storage systems, electromobility and electric vehicle charging stations.

According to the Greek Law's provisions, Energy Communities are the civil cooperatives with an exclusive goal to promote social economy and innovation in the energy sector, in order to deal with energy poverty and meet the European commitment that no one is left behind. In addition, the members of an Energy Community can be natural persons or legal persons, public or private, as well as local authorities of the District where the energy community is located. The members of such a community have to be at least three, if there is no municipality participation, but this number rises to five, in case the municipality takes part in it. The democratic framework demands that the participation in an energy community be absolutely non-compulsory and the possibility to leave from it be guaranteed without any penalty. The Directive 2019/944 defines that an energy community, whose membership consists of citizens and/or local authorities, who voluntarily chose to participate in it retains the right to be active in the sectors of electricity production, consumption, providing electromobility services or other energy services to their members. The energy community also has the right to connect to the distribution network and therefore be treated equally as the rest energy actors, when referring either to possible unbalances it can cause to the system or the access to the electricity markets.

It is obvious that the choice of the energy community's legal form was not random or accidental in the Greek Law. Due to the Greek legislator's will to combine business with social reform, the legal type of cooperative was the ideal to remark the dual aim because this form of cooperation can accelerate the social and psychological dimension of the energy transition by creating positive financial, social and environmental results<sup>36</sup>. Besides the financial benefit in the favor of the local

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<sup>36</sup> Μιχάλης Φεφές, *Ενεργειακές Κοινότητες*, 2020



community the energy communities can upgrade the local economies, by providing new business chances to the members. They also upgrade the social cohesion of a local community by promoting the common goals and the common interest through democratic procedures, boosting trust among the members of the community. Finally, the energy communities contribute to the irreversible transition into a sustainable energy sector, while in the mean time they shape a democratic culture and tone the collective actions to greening the energy.

In the general framework of adhering new rights to the prosumers, the above mentioned Directive provides that the consumers are addressed with an extra right, besides the already above mentioned. It is the right to participate in an energy community, but at the same time maintain all the pre-existing rights of a consumer. As so, the consumer, although being a member of an energy community, is absolutely entitled to conclude a contract with an aggregator who can be totally irrelevant to the supplier of electricity<sup>37</sup>. The prosumers and the energy community can now be part of the Peer to Peer trading (P2P), referring with this term to every possible active participation in self-consumption systems, such as individual or collective self-consumption and energy communities<sup>38</sup>. The P2P trading is a different type of transaction from the traditional transactions that already exist in the retail electricity market and concern the electricity enterprises and the passive final consumers. The structure of the P2P trading is horizontal, as it is basically preferred by the prosumers, in order to sell electricity among them. In that sense the prosumers cooperate directly among them, without necessarily having the need of an intermediary or through a RES aggregator. So, now we can have transactions between two parties, where the one is a consumer and the other a non-professional/traditional vendor, in other words a prosumer<sup>39</sup>. This new status of basically buying goods or services from a non-professional provider is raising a new challenge, the challenge to address the responsibilities of the professional provider to a prosumer if he is to be considered as a professional vendor, which depends on the regularity of his provision. Along with all the above adhered rights, the Directive 2019/944, provides that the prosumers-the provision applies to energy communities as well- carry the obligation to remunerate financially for the possible imbalances they cause to the system due to their volatility, unless they have delegated their balancing responsibility. This specific provision of

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<sup>37</sup> idem

<sup>38</sup> CEER Report, *Regulatory Aspects of Self-Consumption and Energy Communities*, Ref: C18-CRM9\_DS7-05-03, Brussels, 25.06.2019

<sup>39</sup> REScoop.eu's policy paper, *Europe's Green New Deal – what's in it for energy citizens?*, Brussels, 2020, Available at: <https://www.rescoop.eu/toolbox/europes-green-new-deal-whats-in-it-for-energy-citizens>

responsibility allocation to the prosumers designates that the latter do not just hold the consumers' rights but they are also confronted as producers of energy, without being able to clarify which of the two classifications is the primary one. Many questions are to be answered regarding whether the prosumers will fall under the consumer protection legislation or not. The Directive repeats with emphasis that there shall be non-discrimination towards the different social actors that produce and consume energy, wishing to achieve pluralisation on the European energy landscape<sup>40</sup>. One should conclude that the prosumers can keep on relying on the consumers' protection, assigned to them by the art. 21 Dir. 2018/2001, but when referring to technical requirements of the energy system, then they are rather treated as suppliers, currying all the respective financial responsibilities in an equal and proportionate manner. The cross-border transactions in the energy sector will bring further complications (jurisdiction, applicable law) and will highlight the blurring of the boundaries between the consumers and the prosumers<sup>41</sup>.

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<sup>40</sup> See *L. Horstink et al*, 2021

<sup>41</sup>Protecting energy consumers – Available at: <https://ec.europa.eu/energy/topics/markets-and-consumers/energy-consumer-rights/protecting-energy-consumers>

### **3 - The commercial and personal Data of the consumers, the prosumers and the small producers that is allowed to be published by the RES Aggregators in accordance to GDPR.**

Does GDPR exist as an obstacle for managing the energy crisis or as the ultimate safeguard of man's dignity? Data processing is absolutely necessary to achieve the energy transition, but in the end of the day, this necessity cannot result in the loss of Democracy.

#### ***3.1 Brief review of the legal framework concerning data protection in Europe***

The Directive 944/2019, which annuls the Directive 2009/72/EU, since the beginning of January 1<sup>st</sup> 2021, holds the ambition to fulfill the vision for competitive, consumer-centered, transparent, just and flexible electricity energy markets in the European Union <sup>42</sup>. The package was the first important step for the consolidation of a single European energy market and the reform of internal market of electricity in the MS. In particular, it provided for measures to ensure the reliability and efficiency of the electricity transmission system States and enhanced the interests of producers and their customers. The Target Model holds a key role when it comes to one of the most crucial economic activities, the free flow of electricity between the member states.

It is a fact that the Dir. 2019/944 explicitly provides that the MS should guarantee the legal framework in order to fulfill the condition of data exchange between the energy actors and the access to consumption and production data to all the active participants in the energy field <sup>43</sup>, may they be aggregators, consumers, prosumers, producers or energy suppliers. This specific provision raises a further question whether this access to all the data, albeit necessary in order to achieve constant update and amelioration of the transactions in the ultimate goal of reaching climate neutrality and topmost effectiveness of the system, is in fact imposing a further compulsory exposure and therefore jeopardises the privacy of the energy actors' personal data.

The rise of the internet and the information society led at first to the development of the Directive 95/46/EC, which laid down the general framework on the legality of the protection of individuals with regard to the processing of personal data

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<sup>42</sup> 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.

<sup>43</sup> art. 3, par. 4 Dir. 2019/944

and on the free movement of such data<sup>44</sup>, but has not always been a success story at protecting personal data throughout the Union, basically due to its not obligatory character. However, the digital revolution that occupied every aspect of the economy and life in general, even though it offered new business opportunities to individuals and enterprises, it also designated the absolute necessity for a specific legal protection to be established and for the existing legal framework to be ameliorated regarding the protection of personal data..

The General Data Protection Regulation (GDPR 2016/679/EU), which was issued in the year of 2016 and ultimately came in force on 28 May 2018, lays down binding rules protecting natural persons especially concerning the processing of their personal data by means of (semi-) automated means<sup>45</sup>. It is the evolution of the previous above mentioned Directive by introducing seven basic processing principles, concerning the protection of personal data:

1. *lawfulness, fairness and transparency* which are based on the data's subject consent and the prohibition of hidden data processing,
2. *purpose limitation* underlining the limitation of a further processing to the data collected for a certain cause,
3. *data minimization*, concerning the quantity and quality of the collected data,
4. *accuracy* of the personal data that is required by the processor or the collector,
5. *storage limitation* concerning the duration of the conservation of personal data,
6. *data security* principle which suggests that data should not be changed or deleted by unauthorized persons and finally
7. the *accountability* principle, where the processor has to prove that any processing is in compliance with the rules about data protection.

The Regulation applies to all natural persons whose residence is within the E.U. irrespective of nationality and additionally it sets under its obligatory implementation every one who can control or process data, even if they are not established within the Union or the processing is carried out elsewhere. The Regulation clarifies the objectives and defended rights, aiming to build up an economic union with the characteristics of freedom, safety, social development and fairness. As so, the Regulation delimits in its articles and recitals the following nine fundamental data subject's rights :

1. *the right to be informed,*
2. *the right of access,*
3. *the right to rectification,*

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<sup>44</sup> Handbook on European data protection law, 2018, FRA/ECtHR/EDPS

<sup>45</sup> art. 2 GDPR 2016/679/EU

4. *the right to be forgotten,*
5. *the right to restriction of processing,*
6. *the right to be notified regarding the rectification or erasure of personal data or processing restriction,*
7. *the right to data portability,*
8. *the right to object and*
9. *the right not to be subjected to an automated decision-making processing.*

### **3.2 Data processing in the energy field**

Energy sector is one of the economy domains that absolutely needs to export data on a global basis in order to achieve its commercial purpose<sup>46</sup>. In that sense, data flows, although may promote international trade with its respective benefits, at the same time they can expose individuals to more privacy risks. The Regulation explicitly prohibits the cross-border data flows unless the data receiver or collector provides adequate safeguards<sup>47</sup>. The immense volume of data that is transferred and processed in the energy sector can undoubtedly promote international trade with the wide use of digital platforms and online trade, but can also prove to be devastating not only for the individuals' privacy rights but also for the economy and even for the integrity and national security of a state as well, by exposing the data concerning crucial aspects of its internal functioning to malicious monitor and profile processing.

Talking about energy, personal data of the prosumers, for example the collective results about the hours that energy is needed in order to heat or cool their households, can become a valuable asset in the hands of the Renewable Energy Aggregators (FOSE in Greece), whose abuse or misuse may lead to the privacy right being jeopardised. Nowadays, an increasing interest in systematic data acquisitions is noted in every financial sector, including the energy sector, and the consequential processing of information extraction through them, that is able to provide with useful predictions in order to forecast and thus effectively manage the electricity production is in the top of interest. The application of the Internet of things (IoT), for example the use of smart meters and the Big Data Analysis, which refers to a massive collection of data that is processed, analyzed and evaluated for a purpose other than the one originally

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<sup>46</sup> IOECD, Measuring the Economic Value of Data and Cross Border data flows, August 2020, A Business Perspective, No297, pp 10,24 16

<sup>47</sup> Stavroula Rizou/Eugenia Alexandropoulou-Egyptiadou/Konstantinos E. Psannis, GDPR Interference with next generation 5G and IoT NetworksIEEE, 2020

intended<sup>48</sup> can easily lead to the violation of the personal data of the subjects, by allowing external or even internal threats and attacks to happen or by misinterpreting the data and misleading the market on purpose<sup>49</sup>. Besides the established ways to control the security of personal data, that the Regulation provides by design, for example pseudonymisation and anonymisation, each MS can choose a Data Management Model (DMM), either centralized or decentralized<sup>50</sup>, in order to provide a significant guarantee about the validity of any data transaction. Even though it is not within the scope of the present study, some ways promoted to achieve the protection of the personal data will be mentioned. For example, cloud technologies and virtual and cryptographic technologies are chosen in order to face cyber attacks that find fertile ground due to digital interconnections and the respective immense in volume personal data transactions. There is also a heated debate about the application of the relatively new technology of the blockchain in the energy domain, which will offer a high level of security thanks to its immutability that prohibits unauthorized actors to steal or alter the data<sup>51</sup>. Nevertheless, due to its architecture, which is basically not receptive to alternations, blockchain technology will not easily comply with all the rights that are under the scope of the GDPR, mainly the right to access the data and erase or rectify or delete it, as any needed alternation in the digital record demands the absolute consensus of the peers. It appears that the blockchain technology carries another Achilles' heel, which is the weakness to safeguard the confidentiality of the personal data, as it is part of its structure to record the information and dispose it to everyone that has access to the chain<sup>52</sup>.

In Greece, in virtue of art. 24 L.4001/2011, the National Regulatory Authority (RAE) can decide that the Transmission System Operator shall be obliged to provide consumption data to the customers for free. Also, each supplier must comply with the fundamental principle of transparency; thus they are obliged to publish general statistical data collected about customers as well as information on their activities<sup>53</sup>, always in respect of the legal requirements. The Distribution System Operators (DSOs)

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<sup>48</sup> Handbook on European data protection law, 2018

<sup>49</sup> *Radi P. Romansky/Irina S.Noninska*, Challenges of the digital age for privacy and personal data protection, 2020,

<sup>50</sup> art. 23 e-dir.

<sup>51</sup> *Michelle Poelman/Sarfraz Iqbal*, Investigating the compliance of the GDPR: Processing Personal Data on a Blockchain, 2021, IEE 5<sup>th</sup> International Conference on Cryptography, Security and Privacy,

<sup>52</sup> *Fernanda Molina/Gustavo Betarte/Carlos Luna*, Design Principles for constructing GDPR compliant blockchain solutions, 2021, IEEE/ACM 4<sup>th</sup> International Workshop on Emerging Trends in Software Engineering for Blockchain,

<sup>53</sup> art.49 L.4001/2011

will have to become the coordinators of all market actors in the digital era and facilitate the interoperability of markets and services in a neutral and non-discriminatory way, while at the same time will be responsible for managing data exchange. According to the article 46 of the GDPR, appropriate safeguards shall be provided through contractual clauses between the controller or processor and the controller, the processor or the recipient of personal data in the third country or the international organization, or provisions shall be included in administrative arrangements between public authorities or bodies which will include enforceable and substantive rights of data subjects. In addition, another mechanism to protect personal data is the Binding Corporate Rules (BCRs)<sup>54</sup>, which is a procedure followed by a processor or a controller, resident within the European Union, in order to achieve a safe personal data transfer to a member of the group of undertakings, or group of enterprises engaged in a joint economic activity in a third country. Digitalization does carry significant dangers for the energy sector: cybersecurity, protection of privacy and financial disorder<sup>55</sup>. It is for the policy makers to find the golden ratio between privacy concerns and the objectives of global electricity interoperability.

As the line between traders and consumers becomes fine, due to the digitalization and the unlimited applications it offers, it is rather vague at which point consumer law, designed to protect the consumer in traditional transactions, becomes applicable. Regulations such as the GDPR have caused uncertainty on how to treat data. The use of cloud services are not always acceptable by enterprises, due to fears of being hacked which can cause safety breaches for facilities or lead to business secrets being leaked. Respective although fewer doubts, regarding the blockchain technology have already been mentioned above. On the one hand there is the consumer integrity and fundamental right for privacy which is at stake and on the other hand there stands the public good of energy, which is absolutely essential for the world's existence per se. Unless there is a high structured definition of the processing of personal data based on solid rules with an application of a clear policy concerning the energy domain and a simultaneous delimitation of the public information that will be freely accessible, usable and transmissible to everyone unrestrainedly, reduced consumers' s rights will end being the price to pay, if the goals of climate neutrality and sustainable prosperity are to be prioritized.

In Greece there is no clear definition about the prosumer's status, whether they are to be confronted under the protection of consumer law or they are rather seen as

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<sup>54</sup> art. 47 idem

<sup>55</sup>[https://lucris.lub.lu.se/ws/portalfiles/portal/63661809/dalhammar\\_hj\\_rne\\_paper\\_oxford\\_final\\_w\\_watermark.pdf](https://lucris.lub.lu.se/ws/portalfiles/portal/63661809/dalhammar_hj_rne_paper_oxford_final_w_watermark.pdf)

traders, in contradiction to other states that have set clear definitions, for example the UK's Consumer Rights Act, where a trader is defined as "a person acting for purposes relating to that person's trade, business, craft or profession, whether acting personally or through another person acting in the trader's name or on the trader's behalf" and a consumer is defined as "an individual acting for purposes that are wholly or mainly outside that individual's trade, business, craft or profession"<sup>56</sup>. The lack of a defined legal framework in Greece will ultimately, sooner or later, lead to conflicts that will demand an ex-post solution.

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<sup>56</sup> Organization for Economic Co-operation and Development (OECD), "Protecting Consumers In Peer Platform Markets: Exploring The Issues", p. 4. 94 Section 2 Consumer Rights Act 2015



## **Conclusion**

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Climate change and environmental degradation are recognized as one of the greatest problems that humans have to face in the history of their existence. European Union has taken enough action towards the limitation and abatement of climate change by imposing a set of proposals, rules and policy initiatives such as the Paris agreement or the European Green Deal. Production and consumption of energy which constitute 75% of the EU's greenhouse gas emissions are of high importance for the implementation and success of European Climate Law that encapsulates the European Green Deal. In that endeavor, clean energy production, sustainable industry, research and development along with other elements are characterized as the optimal ways to achieve the EU's Green Deal goals and make EU members achieve the transition to a cleaner environment with greener energy.

It is evident that the global demand for energy will keep increasing in the future and the shifting towards renewable energy sources which will never face scarcity is in the topic of interest. Solar panels, wind turbines and the tides are at man's service, should we decide to hinder and even reverse the harm we have already caused to the environment. The formation of energy systems trade that engage the participation of the citizens, who produce surplus energy and sell it for profit, is crucial for keeping the energy pricing at low levels and for achieving more diversified energy source consistency and further sustainability. But how easily will we achieve the energy transition and mainly at what cost? The upcoming dilemma: will the protection of the personal data of the prosumers that is at stake due to wide digitization prevail or will the rival almost out of hand climate degradation that demands every sacrifice arise as an emergency situation overriding every legal barrier? The solutions are not unambiguous and policy makers must design more solid, clearer and more updated common energy policies that will delve deeply in a realistic approach of the protection of the right for privacy by using the optimum means of protection science can offer. The implementation of Target Model along with the proper incentives to make citizens participate in the energy system, individually or collectively through energy communities and the assignment of empowered rights to prosumers will inevitably face a conflict regarding the compliance with the Regulation 2016/679. The processing of

personal data is critical in the energy field in order to satisfy the public interest or the interest of a wider community and progress cannot happen unless big data volumes are available for acknowledgement. Thus, the attention should steer towards contemporary tailored measures that will allow the harmonization of the data processing and the protection of the personal rights of the subjects. The pressure for noting progress towards the energy neutrality should not operate to the detriment of the personal data protection.

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