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**Institutional Framework for a power generation unit under energy
community.**

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ABSTRACT

DIPLOMA THESIS TITLE:

Institutional Framework for a power generation unit under energy community

The subject of this diploma thesis is the investigation of the Legislative Framework governing the Energy Communities (E.Com.). Globally, energy systems are undergoing a fundamental shift because of climate change and fossil fuel depletion. There are continually increasing numbers of local energy initiatives and the number of business models focused on end users is expanding.

The Energy Communities Law 4513/2018 is the Greek integrated institutional framework which is intended primarily to promote a social and solid energy economy. Energy Communities (E.Com.) are urban cooperatives with the sole purpose of promoting the social and solidarity economy as well as innovation in the energy sector. The thesis provides a comprehensive definition, analysis and then financial incentive and supporting measures to be envisaged for the objects of action that the energy community can have.

It is a method for combating energy poverty, saving energy, using renewable sources and increasing local acceptability. Its primary advantages include the possibility for synergies between citizens, enterprises and local authorities, which are willing to be active in the energy sector. It is a democratic model of involvement in decision-making, since each member has one vote irrespective of the cooperative capital he possesses and it also offers the regions on the island with particular criteria. Thus, favorable conditions can be created for local and regional development and innovation as well as for decentralization of energy production.

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I. Introduction

The energy sector is undergoing a global transformation due to climate change. The transition to clean energy is now a necessity.

The European Union (EU) is facing serious challenges directly related to increasing energy demand, significant fluctuations in energy prices and disruptions in the security of energy supply. However, the environmental impact of energy use in all sectors of economic activity remains high. To ensure that European citizens and businesses have access to secure, affordable and environmentally friendly energy, the EU has set three main objectives in its energy strategy: Security of supply, competitiveness and sustainability.

The implementation of the EU Clean Energy for all Europeans Package (CEP), leads to important updates of legislation, including recasts of the Renewable Energy Directive, the Directive on common rules for the internal market in electricity¹ and the new Regulation on the internal market in electricity.

Energy communities are a new institution in the process of energy transition. They were recently introduced by Law L.4513/2018, which came into force in January 2018, and have since gradually entered the Greek energy sector. By increasing social participation, taking into account local specificities and the advantages offered by the production model they introduce, energy communities in practice challenge the traditional centralized model of electricity organization and production, countering it with a more decentralized model where citizens can own and use the technical means of energy production, while introducing the concept of energy democracy.

The main objectives of the L.4513/2018 for the Energy Communities are:

- to support innovation
- to improve energy efficiency
- to enhance the penetration of Renewable Energy Sources (RES) and its production
- to increase the local acceptance of projects RES and the reduction of energy costs for households and small and medium enterprises

¹ Barnes A., Can the current EU regulatory framework deliver decarbonization of gas, The Oxford Institute For Energy Studies, 2020 <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2020/06/Can-the-current-EU-regulatory-framework-deliver-decrbonisation-of-gas-Insight-71.pdf>

- the strengthening of solidarity and the social economy

Its main objectives are to create added value, to strengthen the local community bypassing large interests, to promote synergies and partnerships between citizens and institutions, to ensure democratic functioning with equality of votes among participants, regardless of the cooperative share. The concept of Energy Democracy and Active Citizen is therefore introduced, as individuals now assume the role of consumer and at the same time energy producer².

II. Energy policy (transition- goals of EU policy)

1. EU Energy Policy

The fundamental objectives of EU energy policy are to ensure the functioning of the energy market, to secure the Union's energy supply, to promote energy efficiency and energy saving, to develop new renewable energy sources and to promote the interconnection of energy networks. In addition, decarbonization and climate policy are gaining importance in the energy policy of the European Union (EU).

According to Energy Union (2015), the five main objectives of EU energy policy are:

- Diversify Europe's energy sources, ensuring energy security through solidarity and cooperation between EU countries.
- Ensure the functioning of a fully integrated internal energy market, enabling the free flow of energy through the EU through adequate infrastructure and without technical or regulatory barriers.
- Improve energy efficiency and reduce dependence on energy imports, cut emissions, and drive jobs and growth.
- Decarbonize the economy and move towards a low-carbon economy in line with the Paris Agreement.
- Promote research in low-carbon and clean energy technologies and prioritize research and innovation to drive the energy transition and improve competitiveness.

²Farrel, John, 2017 Institute for Local Self-Reliance, <https://ilsr.org/energy-democracy-in-4-steps/>.

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The EU institutions issued a significant number of Regulations and Directives implementing the EU energy policy

- i. in the context of the functioning of the internal market,
- ii. in the context of energy supply,
- iii. in the context of environmental protection,
- iv. in the context of the interconnection of energy networks.

Typical examples of EU legislation in the energy sector are Regulation 715/2009 (conditions for access to the natural gas transmission networks) and Directives 2009/72 and 2009/73 (common rules for the internal market in electricity and natural gas respectively) in relation to the functioning of the internal market, Directives 2004/67 and 2005/89 (measures to safeguard gas and electricity supplies respectively) in relation to the functioning of the internal market (measures to safeguard the supply of gas and electricity respectively) in relation to energy supply, Directive 2009/28 (promotion of energy use through RES and setting of mandatory national targets) in relation to environmental protection and Decision 1364 / 2006 (laying down guidelines for trans-European networks) for the interconnection of energy networks.

In October 2014, the European Council agreed on a climate and energy policy framework for the EU that sets an ambitious internal target of reducing greenhouse gas emissions by at least 40% by 2030. On 30/11/2016, the European Commission presented a package of measures ("Clean Energy" for all Europeans³) aimed at sustainable development and the promotion of RES to make the EU a world leader in this field and to achieve the target of increasing the share of renewable energy in total energy consumption in the EU to at least 27% by 2030. A long-term strategic objective is to reaffirm Europe's commitment to lead global climate action and to present a vision that can lead to zero greenhouse gas emissions by 2050 through a socially just and efficient transition from the cost side.

The aim of the Commission's proposal was to demonstrate (and convince) that the clean energy transition is the growth sector of the future with the best prospects for "smart money".

The result of the above activity is Directive 2018/2001 on the promotion of the use of energy from renewable sources. The aim of the Directive, which recasts and repeals previous legislation (Directive 2009/28 / EC, Directive (EU) 2015/1513 and Council Directive 2013/18 / EU), is to create a common system for the promotion of energy from

³https://ec.europa.eu/energy/topics/energy-strategy/clean-energy-all-europeans_en

renewable sources in the various sectors. In particular, the Directive aims to set a binding EU target for the share of renewable energy in the energy mix in 2030, to regulate self-consumption for the first time and to introduce a common set of rules for the use of renewable energy sources in electricity, heating and cooling and transport in the EU. Increasing the use of energy from renewable sources will be crucial to combating climate change, protecting our environment and reducing our energy dependency, and will contribute to the EU's technological and industrial leadership. and creating jobs and growth, including in rural and remote areas. The directive ensures that the EU's target is effectively met, creates a stable, market-based European approach to electricity from renewable energy sources, gives investors a sense of long-term security and speeds up transition authorization procedures by giving them the right to produce their own energy from renewable sources, increases the use of renewable energy sources in heating, cooling and transport, and strengthens the EU sustainability criteria for bioenergy.⁴

The Directive includes the following:

- a) binding overall EU target for energy from RES of the order of 32% at least in 2030,
- b) rules for efficient market-based financial support for RES generation of electricity,
- c) protection of support schemes from modifications which jeopardize existing projects,
- d) mechanisms of cooperation between EU countries, as well as between EU countries and non-EU countries,
- e) simplification of administrative procedures for RES projects (including one-stop shops, deadlines and digitization),
- f) improved system of guarantees of origin, which extends to all RES,
- g) rules allowing consumers to generate their own electricity, individually or as part of renewable energy communities, without undue restriction,
- h) in the heating and cooling sectors: annual increase of 1.3 per cent of the share of energy from RES. in the sector, the right of consumers to disconnect from inefficient district heating and cooling systems and access to third party RES suppliers. and waste heat and cooling in the district heating and cooling networks,

1. ⁴ W. Holz, F. Ulatowski, **Energy Policy in Europe: Internal Dimensions and External Perspectives**, Tectum Wissenschaftsverlag, 2019

i) in the field of transport: a binding target of 14% with a specific sub-target of 3.5% for advanced biofuels and ceilings for conventional biofuels and biofuels that pose a high risk of indirect land use change, and

j) Strengthening EU sustainability criteria for bioenergy, by extending their scope to cover all biomass fuels regardless of energy end-use

In 2019, and in line with the EU's long-term 2050 strategy, the EU also presented a comprehensive update of its energy policy framework to facilitate the transition from fossil fuels to clean energy and, in particular, to meet Paris Agreement commitments to reduce greenhouse gas emissions. This new framework (agreement) "Clean Energy for All Europeans Package" represented a significant step towards the implementation of the Energy Union strategy and completed the framework of European energy policy towards the detoxification of fossil fuels, the strengthening of clean energy sources and the implementation of the Paris Agreement to reduce their greenhouse gas emissions, with the rights of citizens and communities being directly incorporated into the energy sector. In this package, the following 2030 targets were adopted: Reduce greenhouse gas emissions by 40% compared to 1990. Share of RES in final energy consumption by 32%. Energy savings target of 32.5%.

The Clean Energy for All Europeans package consists of 8 legislative acts⁵ several of which are central to achieving the EU's 2030 energy and climate targets.

The Energy Union is built on five closely interlinked and mutually reinforcing dimensions⁶:

- **Security, solidarity and trust** - diversifying Europe's sources of energy and ensuring energy security through solidarity and cooperation between EU countries
- **A fully integrated** internal energy market - enabling the free flow of energy through the EU through adequate infrastructure and without technical or regulatory barriers

⁵ **Clean energy for all Europeans package - legislative process:**

- Energy performance in buildings- Directive (EU) 2018/844
- Renewable energy Directive (EU) 2018/2001
- Energy efficiency Directive (EU) 2018/2002
- Governance of the energy union Regulation (EU) 2018/1999
- Electricity regulation Regulation (EU) 2019/943
- Electricity directive Directive (EU) 2019/944
- Risk preparedness Regulation (EU) 2019/941
- ACER Regulation (EU) 2019/942

⁶ https://ec.europa.eu/energy/topics/energy-strategy/energy-union_en

- **Energy efficiency** - improved energy efficiency will reduce dependence on energy imports, lower emissions, and drive jobs and growth
- **Climate action, decarbonizing the economy** - the EU is committed to a quick ratification of the Paris Agreement and to retaining its leadership in the area of renewable energy
- **Research, innovation and competitiveness** - supporting breakthroughs in low-carbon and clean energy technologies by prioritizing research and innovation to drive the energy transition and improve competitiveness.

The EU is pursuing a consistent energy policy with the main objective of avoiding serious consequences for the European economy in terms of productivity, infrastructure, food production capacity, public health, biodiversity and political stability.

Europe has set an even more ambitious target with the European Climate Change Act to reduce greenhouse gas emissions to 55% (1990 baseline) by 2030, instead of the current 40%. This will certainly have an impact on the individual targets for renewable energy sources and energy savings at European and national level.

2. Energy poverty

Energy poverty is a very serious phenomenon at European level, affecting more than 50 million people mainly due to the low energy efficiency of residential buildings and appliances⁷, the high cost of purchasing energy products and low income. This phenomenon has a detrimental impact on the health and well-being of citizens, while also affecting social cohesion and the environment. The European Commission has already recognized energy poverty as an important problem and is committed to protecting vulnerable households.⁸

Energy poverty is a priority under the “Clean Energy for All Europeans” package, which was completed and adopted in May 2019, and for the first time agreed on the need for a common definition of energy poverty, requiring Member States to set a national target to tackle energy poverty in the context of their National Energy and Climate Plan (NECP).

⁷ W. Holz, F. Ulatowski, **Energy Policy in Europe: Internal Dimensions and External Perspectives**, Tectum Wissenschaftsverlag, 2019

⁸ **European Economic and Social Committee «For coordinated European measures to prevent and combat energy poverty»**, <https://www.eesc.europa.eu/el/our-work/opinions-information-reports/opinions/coordinated-european-measures-prevent-and-combat-energy-poverty>

In particular, Directive (EU) 2019/944 concerning common rules for the internal market in electricity and amending Directive (EU) 2012/27 provides that Member States should take the necessary measures to protect vulnerable and energy-poor consumers in the context of the internal electricity market.

These measures may vary according to the specific circumstances of each Member State and may include social or energy policy measures for the payment of electricity bills, for the initiation of investments to improve energy efficiency or for the protection of consumers.



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3. Energy Democracy

The active participation of citizens, in regional and local authorities and small and medium-sized enterprises in energy production, which in practice no longer involves just a few large 'players'. Either for reasons of environmental protection and combating climate change, or because RES is more economically viable, the energy transition to a fossil fuel economy has begun and is irreversible. Energy democracy ensures that the energy transition takes place with social justice in mind. Therefore, society plays an active and not a passive role.

Energy Democracy is important because:

⁹ https://gr.boell.org/sites/default/files/2020-01/BOLL_POVERTY2_WEB.pdf

- i. the cost of generating energy from RES is steadily decreasing and is already directly competitive with (subsidized) fossil fuels. The ability to produce our own energy for self- consumption or even for sale to the grid is our right as citizens, a right that is now being institutionalized at the European level.
- ii. The production of energy from large units of fossil fuels (lignite, oil, fossil gas) or nuclear power plants, currently controlled by large companies, is extremely harmful to the climate, the environment and public health. These companies will seek to maintain control of the energy sector, and therefore the operation of these plants, as much as possible. Democratization of the energy sector will ensure that the replacement of dirty energy sources with clean energy sources is done in the fastest and most socially just way.
- iii. Many energy activities with huge environmental and development benefits (e.g. biomass, biogas) remain hidden due to lack of interest or bureaucratic obstacles. The institutional framework for energy communities facilitates their development.
- iv. Two of the most important institutions recognized as vehicles of energy democracy under certain conditions are cooperatives and local government institutions.

FROM ENERGY MONOPOLY TO ENERGY DEMOCRACY



1. John Farrel, 2017, From Energy Monopoly to Energy Democracy

4. Cooperative in general

a. A few words about the cooperative

In the cooperative, a group of individuals or legal entities decide to work together on an equal and democratic basis to pursue a common economic, social or cultural goal. The value of the cooperative as an enterprise lies in the need for collective action in areas where an individual operator could not or would not have a financial interest in doing business. Through cooperation, solutions emerge that serve the members of the cooperative. By working together, solutions emerge that serve the members of the cooperative. Indeed, energy cooperatives are one of the most recent examples of cooperative ventures.

It is evident that the cooperative is a special and peculiar form of cooperation. It has unique characteristics not found in other forms of cooperation. It is a distinct entity that plays its own role in a system of interdependence with the public and private sectors of the economy.

Its fundamental difference from other entities lies in its dual nature. Entrepreneurship and social reform coexist in cooperatives. It is a mistake to ignore either side of the cooperative, for then it becomes either a commercial corporation or a charity.

In view of the foregoing, it is clear that the cooperative is a financial institution which acts and seeks to serve the interest of its members, but whose activities are in harmony with the social interest. Moreover, the members of cooperative societies must exhibit certain virtues in order to uphold the aforementioned cooperative values. The cooperative principles (the guidelines), by which cooperatives implement their values and on the basis of which all cooperatives must operate are¹⁰:

i. 1st Principle - Voluntary and open membership

Cooperatives are voluntary organizations open to all persons who are able to avail themselves of their services and who wish to assume the obligations of membership, regardless of gender, social status, race, political opinion or religion (without discrimination on the basis of sex, social status, race, political opinion or religion). Thus, it does not mean compulsory participation of a person in a cooperative society as well as compulsory residence in it. The entry and exit of members is not uncontrollable, criteria may be set (in the statutes) for the admission of a member related to the nature of the cooperative, or entry may not be possible for objective reasons. The same applies to the withdrawal of members. The statutes of a cooperative make it compulsory to remain in the cooperative for a certain period of time, while departing

¹⁰ <https://www.ica.coop/sites/default/files/publication-files/ica-guidance-notes-en-310629900.pdf>

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members are responsible for the obligations created by the cooperative during their membership and also after their departure.

ii. 2nd Principle - Democratic Member Control

Cooperatives are democratic organizations run by their members, who are actively involved in shaping their policies and making decisions. Men and women who offer their services as elected representatives are accountable to the members. In primary cooperatives, members have equal voting rights (each member has one vote) and in higher level cooperatives they are also democratically organized. This principle demonstrates that the cooperative is a predominantly anthropocentric institution

iii. 3^d Principle – Member Economic participation

The members have an equal share and democratically manage the capital of the cooperative. At least part of this capital is usually the common property of the cooperative. Members usually receive limited or no compensation for the capital they have paid in for their membership. Members dispose of the surplus for any or all of the following purposes:

- (a) development of the cooperative, possibly through the accumulation of reserves, at least a portion of which is redistributed,
- (b) repayment to members according to their transactions with the cooperative, and
- (c) support of other activities approved by the members.

The classical concept of profit is not part of the cooperative's activities. For this reason, the cooperative is classified as a nonprofit. It is important to understand the difference between surplus and profit. Surplus comes from transactions with members, while profit comes from transactions with non-members - third parties.

The difference between profit and surplus is obvious and a fundamental difference between conventional businesses and cooperatives. For this reason, a cooperative can eventually operate at cost and be a healthy and very efficient enterprise. It should be noted that equal participation in the capital does not necessarily mean that all members acquire the same number of compulsory shares, but also that the shares must be distributed fairly according to the financial possibilities of each member

iv. 4th Principle - Autonomy and independence

Cooperatives are autonomous self-help organizations run by their members. If they enter into agreements with other entities, including governments, or raise funds from external

sources, they are free to do so¹¹. In doing so, they must follow rules that ensure democratic management by the members and preserve the autonomy of the cooperative. The financial position of the cooperative is essential to maintain its independence.

v. 5th Principle - Education, training and information

Cooperatives provide training and internships to their members, elected board members, managers and staff so that they can effectively contribute to the development of their cooperative. Educate the public - especially young people and opinion leaders - about the nature and benefits of collaboration.

vi. 6th Principle - Collaboration between cooperatives

Cooperatives serve their members with maximum efficiency and strengthen the cooperative movement when they cooperate with each other through organizations at local, national, regional and international levels..

vii. 7th Principle - Concern for the Community

Cooperatives are committed to the sustainable development of their communities through policies approved by their members. Offering to the community is one of the main priorities of the cooperative.

b. Energy Communities Legal Framework

Energy communities are defined in two separate laws of "Clean Energy Package"¹², Renewable Energy Directive (EU) 2018/2001, which sets the framework for 'renewable energy communities' covering renewable energy¹³, and Internal Electricity Market Directive (EU) 2019/944, which introduces new roles and responsibilities for 'citizen energy communities' in the energy system, covering all types of electricity. These two directives describe energy communities as "a possible way of organizing collective citizen actions in the energy system" and allow different forms of energy communities through a legal entity. It is obvious that the aim of these guidelines is to ensure that energy communities can operate in the market without discrimination through certain criteria and activities. Energy communities are included as non-commercial market

¹¹ <https://www.ica.coop/en/cooperatives/cooperative-identity>

¹² For an oversight of the different proposals see Commission, 'Clean Energy for All Europeans' (Communication) <<https://ec.europa.eu/energy/en/topics/energy-strategy-and-energy-union/clean-energy-all-europeans>>

¹³ Caramizaru A., Uihlein A. , Energy communities: an overview of energy and social innovation researchGate, 2020, https://www.researchgate.net/publication/339676692_Energy_communities_an_overview_of_energy_and_social_innovation

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actors that combine non-commercial economic objectives with environmental and social community objectives.

As far as Greece is concerned, national energy policy has been designed largely in accordance with EU law. Greece participates in global efforts to tackle climate change, but also follows European energy policy, taking into account the specificities of the Greek energy sector and the impact of the economic recession, and adopts and implements policies that contribute to the transition to clean energy from production to consumption¹⁴.

With the establishment of the framework of Energy Communities, L.4513/2018, a new legal entity was created based on the institutional framework of urban cooperatives based on Law 1667/86¹⁵. Therefore, "Energy Community" is a cooperative aimed at promoting the social and solidarity economy and innovation in the energy sector, combating energy poverty and promoting sustainable energy production, storage, energy management, self-consumption, distribution and energy supply, as well as improving energy self-sufficiency and security. It is also an important tool in the context of the penetration of renewable energy sources in the energy mix, while the possibility of local community participation increases the uptake of RES and information.

The main objectives of L. 4513/2018 for the Energy Communities are:

- i. support for innovation
- ii. improve energy efficiency
- iii. the enhancement of the penetration of Renewable Energy Sources (RES) and its production \leftrightarrow the increase of the local acceptance of RES projects
- iv. reduce energy costs for households and small and medium-sized enterprises
- v. strengthen solidarity and the social economy

Energy communities apply a model of democratic participation in the decision-making process, in that each member has a vote, regardless of the share it holds

The cornerstone of this legislation is the provisions to combat energy poverty, since in the context of creating incentives for the efficient operation of energy communities, measures are envisaged to support vulnerable consumers who are below the poverty line, within the region where the energy community is located, without the mandatory participation of vulnerable consumers in the composition of the energy community. Indicative actions are the supply or compensation of energy, the energy renovation of

¹⁴ Heinrich Bell Foundation Thessaloniki Office, *Building Energy Communities. Energy in the hands of citizens*, September 2019

¹⁵

houses or other actions that reduce energy consumption in the homes of the above-mentioned citizens.

The framework for the development of energy communities provides, among other things, the possibility of synergies between the local government, local businesses and citizens who want to actively participate in the process of energy production, and also includes specific provisions that take into account the insularity and facilitate the establishment and operation of Energy Communities on the islands. At the same time, this instrument creates the conditions for regional development and productive reconstruction in a sustainable direction, decentralizes energy production and promotes innovation (social, technological, etc.).

The main sectors in which E. Com operates are:

- i. Collective self-consumption
- ii. Generation (community energy projects that collectively use or own generation assets (mostly solar, wind and hydro), where members do not consume the generated energy themselves but feed it into the grid and sell it to a utility)
- iii. supply (the sale (and resale) of electricity and gas to customers (electricity, wood pellets, biogas and others). Large communities may have a large number of retail customers in their area and may also engage in aggregation activities that combine customer loads and flexibility, or generate electricity for sale, purchase, or auction in electricity markets)
- iii. distribution (ownership and/or management of community-operated distribution networks, such as local electricity grids or small-scale district heating and (bio)gas networks, often cooperatives can handle both power generation and distribution, but grid infrastructure is the focus of their business)
- iv. Aggregation
- v. Power sharing
- vi. Energy services
- vii. Tackle energy poverty

III. Energy communities

1. Introduction

It is expected that electricity generation, storage and management at household and community level will become more important in the integrated energy system. In addition,

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consumers can not only consume but also actively invest in decentralized energy resources, comply with prices and provide services to the energy system.

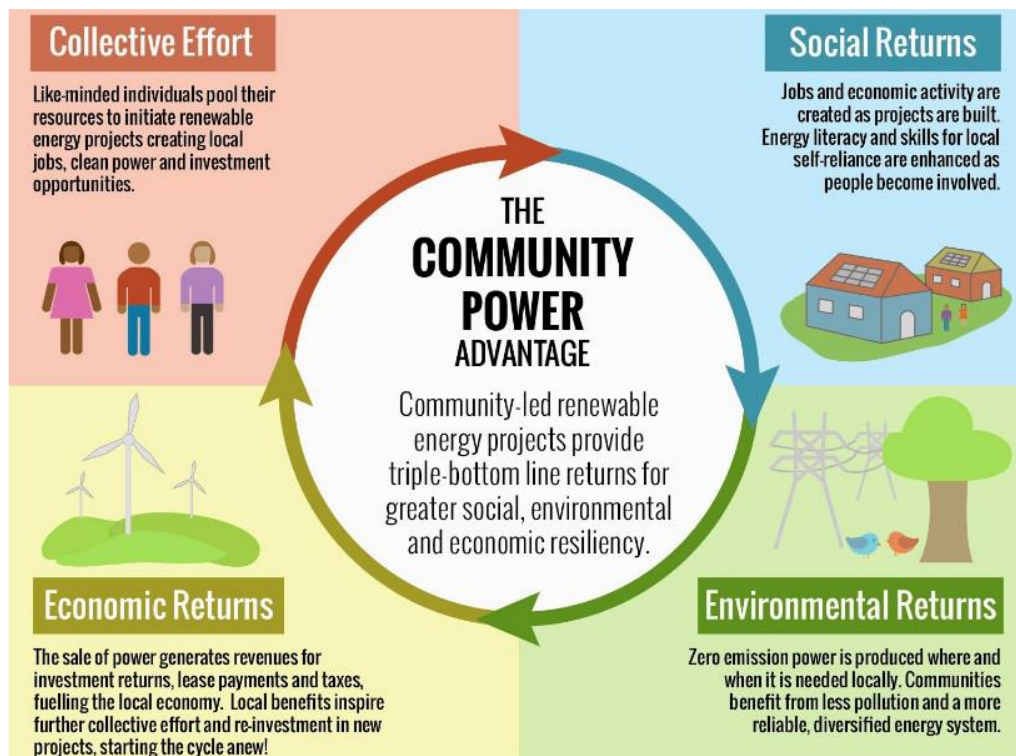
The decline in energy resource prices indicates the possibility of local, independent power systems. As a result, the technological and institutional arrangements of these current energy systems also need to be changed and new business models created. One such model is a Energy Community - E. Com.¹⁶(Community Energy System - CES).

In this context, integrated community energy systems are versatile smart energy systems that optimize the use of all local energy resources and effectively address the changing local energy landscape and local communities.

With the increasing prevalence of distributed energy resources, the Energy Communities. can either be integrated into the grid or disconnected from the grid. When the grid is interconnected, the electricity deficit can be bought from the grid and the surplus can be sold to the grid. In other words, the grid acts as a storage facility for Energy Communities.

Local communities are able to identify local energy needs and bring people together to achieve common goals such as self-sufficiency, self-reliance, flexibility and autonomy. Local energy systems such as Energy Communities. are being introduced with the aim of reducing energy costs and CO₂ emissions and reducing reliance on traditional utilities. Although local energy initiatives are developing rapidly, the incentives have been and continue to be largely economic.

¹⁶ Frieden, D., Tuerk A., Roberts J., d'Herbement S., Gubina A., 'Collective self-consumption and energy communities: Overview of emerging regulatory approach in Europe', H2020 project COMPILER, June 2019



<https://powerpolitics.eu/wp-content/uploads/2018/02/community-power-advantage-infographic.jpg>

Non profit Energy Communities, usually reinvest their profits in new renewable energy and energy-saving projects that benefit the environment, society, and economy. Participation and action within energy communities also appears to improve social cohesion by increasing interaction and dialogue among members who share the benefits of renewable energy sources, which is critical to their long-term viability.

The general public is activated through information and invitations to participate in decision-making about the development of renewable energy projects and energy conservation, as well as the benefits that come with participation. As a result, energy democracy is realized, and citizens have the opportunity to exercise more effective control.

Citizens are empowered by the RES projects developed by E.Com. in the sense that they gain technical knowledge, skills, and abilities that go beyond those gained by a traditional investor (who usually focuses only on the profitability of his shares). The E.Com., on the other hand, focuses on education and training for members, children, and the general public, as well as providing services to the larger local community.

Furthermore, they raise energy conservation awareness in the areas where they operate and encourage more conscious energy consumption. Furthermore, RES projects led by

energy communities are more environmentally conscious, as their impact is monitored and evaluated by the citizens and local governments who are directly involved as members (the majority of members must reside in the same area where is the headquarters of E.Com.). Members of energy communities do not propose to achieve better returns on their investments than environmental authorities because energy communities are not solely profit-driven.

2. Establishment of an energy community

a. Definition

Energy Communities is a legal entity (a) that is founded on voluntary and open participation and is effectively governed by members or shareholders who are natural individuals, local bodies (including municipalities), or corporations. or small businesses, (b) whose primary purpose is to provide environmental, economic or social benefits to its members or shareholders or to the local areas in which it operates, rather than for financial gain, and (c) that may engage in generation, including from renewable sources, distribution, supply, consumption, aggregation, energy storage, energy efficiency services, or electric vehicle charging services, or provide other energy services to its members or shareholders.¹⁷

Energy communities are exclusive urban cooperatives through which mainly citizens (either individuals or legal entities) can operate in the energy sector by using clean energy sources. The new institutional framework ensures favorable conditions for the creation and operation of energy communities, with the aim of strengthening not only the income of individuals/families¹⁸, but also local entrepreneurship, the solidarity economy and the promotion of energy democracy.

Article 1§1 of Law 4513/2018 defines the concept of Energy Community. The Energy Community is a municipal cooperative with the sole objective of developing the social and solidarity economy, as defined in para. 1 of article 2 of Law 4430/2016 and innovation in the energy sector, the fight against energy poverty and the promotion of

¹⁷ Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast), OJ L 328, 21.12.2018, p 82 (Recast Renewable Energy Directive),

¹⁸ Heinrich Bell Foundation Thessaloniki Office, *Building Energy Communities. Energy in the hands of citizens*, September 2019

energy sustainability, production, storage, self-consumption, distribution and supply of energy, enhancing energy self-sufficiency and security in island communities and improving energy efficiency in end-use at local and regional levels through activity in the areas of Renewable Energy Sources (RES), High efficiency Cogeneration of Heat and Power (HECHP), rational use of energy, energy efficiency, sustainable transport, demand-side management, and generation, distribution and supply of energy. The above definition leads to the following conclusions:

(a) An E. Com. is mandatorily cooperative in nature in accordance with the provisions of the Civil Cooperative Societies Act. Therefore, the E. Com. is a legal person under private law and has the status of a commercial company (Article 1§7, L 1667/1986).

b) It pursues exclusively the purpose stated in the relevant article and therefore cannot be extended to other activities, even if these serve the interests of its members. Consequently, the only field of activity of an E. Com. is the energy sector and only the activities listed in Article 4.

(c) Entrepreneurship in the energy sector must be directed towards the objectives set out in the relevant article. Thus, the objectives are to promote the social and solidarity economy, innovation, combating energy poverty, promoting energy sustainability, generation, storage, self-consumption, distribution and supply, improving energy self-sufficiency and security in island communities, and improving energy end-use efficiency at the local and regional level.

(d) The objectives will only be achieved through the activities in the RES and HECHP sectors through the rational use of energy, energy efficiency, sustainable transport and the management of demand and production, distribution and supply of energy.

Finally, the creation of an E. Com. can be done in three ways, either ex novo, which will of course be the rule, at least initially, or by merger or transformation. In the first case, a new legal entity is created by natural and/or legal persons who decide for the first time to carry out a business activity in the energy sector through a cooperative. In the second case, a new legal entity is created by two or more existing E. Com. that decide to dissolve and continue their business activity through a new E. Com. with its own legal personality, to which they transfer all their assets. In the third case, a company decides to become an E. Com.

b. Purpose and object of activity

Furthermore, Article 4 L.4513/2018 details the purpose and objective of the activity of an E. Com. The article is divided into two sections. The first section describes specific activities of which the E. Com. must engage in at least one. The second section describes activities that the E. Com. may engage in, i.e. optional, voluntary activities. Therefore, one or more of the activities in the first section will be compulsorily included in the purpose described in the E. Com.'s articles of incorporation, while the purpose may also include some or more of the activities in the second section. In no case, however, can the purpose of an E. Com. be exclusively activities of the second section. After these explanations, we proceed to the description of the law relating to the activities of the E. Com. Article 4§1 contains the mandatory activities and they are as follows:

- i. Generation, storage, own consumption or sale of electricity or heating or cooling energy from RES. or C.H.P. or Hybrid Stations within the region where E. Com. is located or within a neighboring region for E. Com. located within Attica Region,
- ii. management, such as the collection, transport, processing, storage or disposal of raw materials for the production of electrical or thermal energy or refrigeration from biomass or liquid biofuels or biogas or through the recovery of energy from biodegradable municipal waste,
- iii. Energy products, equipment and installations aimed at reducing energy consumption and the use of conventional fuels and improving energy efficiency,
- iv. Providing members with electric vehicles, hybrid or not, and alternative fuel vehicles in general,
- v. Distribution of electricity within the region in which it is located,
- vi. Supply of electricity or natural gas to retail customers within the region in which it is located,
- vii. Generation, distribution and supply of heating or cooling energy within the region in which it is located,
- viii. Demand-side management to reduce electricity end-use and represent generators and consumers in the electricity market,
- ix. Network development, management and operation of alternative fuels infrastructures in accordance with Law 4439/201 or management of sustainable transport in the region where E. Com. is located,
- x. Installation and operation of water desalination plants using RES within the region where E. Com.'s registered office is located,
- xi. provision of energy services in accordance with Article 10 of Decision Δ6 / 13280 / 7.6.2011 (B 1228) of the Minister of Environment, Energy and Climate Change.

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In addition to these mandatory activities, Article 4§2 contains the potential activities, namely the following:

- i. Raising funds for the realization of investments in the use of RES. or C.H.P. or measures to improve energy efficiency within the region where the headquarters of E. Com. is located,
- ii. Preparation of RES utilization studies or C.H.P. or implementation of energy efficiency improvement measures or provision of technical assistance to members in the above areas,
- iii. Management or participation in programs financed by national or EU funds. on their objectives
- iv. Advising on the management or participation of its members in programs funded by national or EU funds. on its objectives,
- v. Informing, educating and raising awareness at local and regional level on energy sustainability issues,
- vi. Actions to support vulnerable consumers and reduce energy poverty in the region of the E. Com. headquarters, whether or not they are members of the E. Com., such as energy supply or compensation, energy renovation of houses or other measures to reduce energy consumption.

The above activities are mandatory according to the E. Com. statutes and it is forbidden by law to include activities other than those mentioned above

c. Founding members

The minimum number of members required to form an E. Com is in Art. 2§2 L.4513/2018. This number varies depending on the type of members on the one hand and their status on the other.

Specifically, paragraph 2a states that at least five members are required if they are natural persons or legal persons under private law or legal persons under public law other than Local Authorities. or any combination thereof (e.g. five natural persons or 2 natural persons, 2 Private Legal Entities and 1 Public Entity, etc.).

In addition, paragraph 2b reduces the minimum number of members to three, whether they are Public Entities or Private Legal Entities or natural persons or any combination thereof, provided that at least two members are Local Authorities (2 Local Authorities and 1 Public Entity or 2 Local Authorities and 1 Private Legal Entity or 2 Local Authorities and 1 natural person).

Finally, paragraph 2c limits the number of members to two, provided that the members are Local Authorities (1st level), i.e. municipalities, island territories with a population of less than 3,100 according to the last census. In addition to the minimum number of members, Art. 2§3 imposes a general local restriction on members and specifically provides that at least 50% plus one member must be associated with the place where the registered office of E. Com is located.

Thus, the first concern of the founding members is to ensure that a simple majority of them are connected to the location of the registered office. The nature of the local relationship varies depending on the type of person. First of all, any natural person can acquire the status of member, but if the E. Com. is composed exclusively of natural persons, half plus one (50% + 1) of them must in any case be either the owner or beneficiary, in whole or in part, of a property located in the district of the registered office of the E. Com. or be citizens of the municipality of that region.

In addition, any legal entity may acquire the status of member. However, if the E. Com. is composed exclusively of legal entities, half plus one of them must have their registered office in the region of the E. Com.'s registered office.

Finally, any municipality or region, or a company in the municipality or region, may acquire member status. The only restriction is that if the E. Com. consists exclusively of Local Authorities, they must belong to the same region where the E. Com's headquarters are located.

Although it is not specifically mentioned in the law, it is a datum that the above numerical and local restrictions must be observed throughout the life of the E. Com. otherwise it is a violation of Art. 2.

d. Statute

The establishment of the E. Com. requires the drafting of a statute, which must be signed by the founding members (Article 7§1 in conjunction with Article 1§3 of Law 1667/1986). It is clear that the law, as in most cases, does not require a separate contract for the establishment of the E. Com. between its members, so that the statute essentially contains two documents, the "Memorandum of Association", the contract, i.e. between the members who agree to establish the E. Com., and the "Act of Incorporation", which describes all the necessary elements that ensure its smooth and proper functioning. This does not mean that the separate Constitutive Act, if any, is invalid, it is simply not considered a constituent document of the E. Com.

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The Articles of Association is a formal multilateral legal act (contract) and the form to be followed is the private document (Article 5), no public form is required, such as the notarial deed. The private document of the statute is dated and signed by the founding members (Article 7§1) and receives a certified date with its registration.

In addition to the mandatory compliance with the type, the E. Com. articles of association are valid only if they contain the minimum contents required by Article 5. These are:

- i. The name, patronymic, address, and tax number (TIN) of the natural persons who are members.
- ii. The name, registered office, VAT number and, if there is an obligation to register in the General Electronic Commercial Register (G.E. COM.R.), the legal members.
- iii. The name of the E. Com. The E. Com. shall have a name formed in accordance with the law. In particular, the name may not contain the names of natural persons or the names of legal persons, whether members or third parties. Permitted is the naming of words that most closely identify the nature of E. Com's activities. The name must contain the words "Energy Community" or the abbreviation "E. Com." (objective name) and an indication of the extent of the responsibility of its members (unlimited or restricted).
- iv. its registered office. The registered office of the E. COM. is defined as a municipality or a municipal district of the Greek territory.
- v. Its purpose and activities.
- vi. A description of the conditions for joining, resignation and deletion of members.
- vii. The rights, obligations and consequences of non-fulfilment of their obligations to the E. Com. The rights and obligations provided for by law shall be included in the Statutes on a mandatory basis. The consequences of non-fulfilment of obligations, apart from delisting, shall be at the discretion of the Statute.
- viii. The amount of the cooperative share, the method of its payment and the procedure for its return. As clearly stated in Art. 4§3 of Law 1667/1986, the share is always expressed in a certain amount of money, i.e. there is no contribution in kind. The timing of the deposit is indirectly regulated by article 8§3, which states that within a period of three months from the date of registration in the E. Com. register, the minutes of the temporary management committee or the Management Board must be submitted to the competent service of GENERAL COMMERCIAL REGISTRY to certify the deposit of the cooperative capital established in the Articles of Association ix. The extent of liability of the members of the E. Com.

- ix. Duration (for definite or indefinite period).
- x. The number of members of the Management Board. An exception is introduced to the application of Article 7§1 of Law 1667/1986, which provides that the Management Board shall consist of at least five members. In the E. Com. the Board may consist of at least three members.
- xi. The fate of the cooperative share in the event of the death of a member xiii. The appointment of a temporary management committee to ensure the approval of the constitution and the convening of the first general meeting for the appointment of the board of directors xiv. The manner of disposal of surplus funds for use.
- xii. The end of the first financial year.
- xiii. The auditors of the first financial year.

In addition to the above mandatory elements, the articles may provide for and regulate such other matters as the shareholders may think fit. The drafters of the Articles of Association must attempt to anticipate and record in full detail, based on national and international experience, their intent and manner of cooperation.

e. Procedure

When the draught of the Statutes is completed and signed by the members, it must be registered in the Register of E. Com. at GENERAL COMMERCIAL REGISTRY (G.E.MI.). The certificate of registration is essential for the completion of the process of establishing an E. Com., as the E. Com. acquires legal personality and commercial status only from the date of registration¹⁹.

In order for the E. Com to acquire legal personality, its provisional management committee submits the statute to the Department. of G.E.MI. REGISTRY of the Chamber of the regional entity in which it has its registered office²⁰.

In addition, in order to prove that the conditions of Article 2 of the Law are met, the notarial documents or the declarations of real estate data (E9) for the natural person-members proving full or partial ownership or usufruct of a real estate within the region of E. Com.'s registered office, or the civil status certificates of its natural person-members who are citizens of the municipality of the region where E. Com.'s registered office is located, and the bylaws of E. Com.'s legal person-members are submitted²¹. The

¹⁹ Article 7§3, L.4513/2018

²⁰ Article 7§2a and Article 87§4, L. 4635/2019

²¹Article 7§2b, c, L.4513/2018

documents shall be accompanied by a written application for registration in the E. Com. The Department of the General Commercial Register Service is responsible for receiving and verifying the completeness of the application and the attached documents. It then carries out a legality check and makes the entry of E. in the register and any other entries concerning it. It is also responsible for issuing certificates and issuing copies and extracts.²² Upon registration, the E. Com. acquires. Legal personality. Apart from the entry in the E. Com. Register, there is no obligation to make further entries.

f. Invalidity E. Com

Proof of the invalidity of the incorporation of the E. Com. is only admissible by means of an action against the E. Com., which may be brought by anyone with a legal interest within two months of the plaintiff becoming aware of the entry of the E. Com. in the E. Com. register of GENERAL COMMERCIAL REGISTRY, and in any case not later than six months after its registration.²³

g. E. Com. Registry

The E. Com. Registry is established by Article 8 of the Law and constitutes a new register identical to the General Commercial Register (G.E.M.I.). The E. COM. Register is a public register maintained in electronic form by the General Commercial Register through the competent services of the General Commercial Register Service of the local chambers²⁴. By decision of the Ministers of Economy and Development and of Environment and Energy, the technical specifications of the E. Com. Registry and all the details necessary for its operation and the application of the law will be established²⁵.

The E. COM. Registry shall contain:

- the name and purpose of the E. COM.,
- the category of the E. COM. in relation to the liability of the shareholders, and

²² Article 87§3, L.4635/2019

²³ Article. 1§8, L. 1667/1986,

²⁴ Article 8§8, L.4513/2018

²⁵ Article 8§8, L.4513/2018

- the names of the legal representatives of the E. COM.²⁶ The E. Com. register shall record any change in the above data. If the registered office of the E. COM. is transferred, a note to that effect shall be made in the E. COM. register²⁷

h. Financial incentives for the establishment of an E. Com

Pursuant to Art. 11 L.4513/2018, twelve measures have been adopted to provide financial incentives and support measures for the establishment of an E. Com. In detail:

- i. The E. Com. can be included in the L. 4399/2016 (A 117) applied proportionally to the provisions of L.4430/2016 for Social Cooperative Enterprises, as well as in other programs financed by national or European Union funds, depending on their purpose.
- ii. By decree of the Minister of Environment and Energy, special terms and conditions may be established for privileged participation or exclusion from the tendering procedures provided for in Article 7 of L.4414/2016 for RES.
- iii. By decree of the Minister of Environment and Energy, special conditions may be established, such as preferential tariffs, longer period of use, for the use of the services of the Aggregator of Last Shelter (FOSETEK) of article 5 of Law 4414/2016 of stations and HECHP. owned by E. Com
- iv. The regulation of Electricity Generation Licenses with the use of Renewable Energy Sources and by high efficiency cogeneration of par. 3 of article 5 of L. 3468/2006 may provide special conditions for RES stations. and HECHP. and Hybrid Stations licensed by E. Com. As provided in Article 5, L 4513/2018, the submission of an application for a generation license, its amendment or revocation to the RAE maintaining a Special Register for the generation of electricity from RES or HECHP. where the details of the licenses are registered, the acts of exemption from the obligation to obtain these licenses, their transfer, their amendments and any other change in the details of the licenses for which no amendment is required.
- v. The E. Com. shall be exempted from the obligation to pay the annual fee for maintaining the right to hold a license for the generation of electricity, which is required for RES. and HECHP and Hybrid Stations in subsection I.2. of par. I of article one of Law 4152/2013 (A 107).

²⁶ Article 8§2, L 4513/2018 (Energy Communities)

²⁷ Article 14§1, L 1667/1986 (Urban Cooperatives)

- vi. The applications submitted by E. Com. for granting a production license to RAE for power plants of RES and HECHP. and Hybrid Stations will be given priority.
- vii. The amount of the guarantee letter of paragraph 3 of subparagraph I.1. of Par. I of Article One of Law 4152/2013 for the stations RES, HECHP. and Hybrid Stations, belonging to E. Com., shall be reduced by fifty percent (50%).
- viii. Article 134§3, L. 4001/2011, establishes the conditions for the granting of a license for the supply of electricity by RAE, in accordance with the more specific conditions provided in the Licensing Regulation. In particular, for E. Com, the licensing requires a cooperative capital of at least 60,000 euros, while for SAs and limited liability companies it requires a share capital of at least 600,000 euros.
- ix. By decision of the Energy Regulatory Authority (RAE), following a proposal from the electricity market operators and administrators, reduced guarantee amounts may be established for the registration of E. COM. in the subscriber registers under the contracts of Daily Energy Planning Transactions (DEP) and the management of electricity networks, taking into account criteria such as population or electricity demand in the region of E. COM.'s registered office
- x. The installation of RES stations is allowed and NGCCP and Hybrid Stations of E. COM. to meet the energy needs of its members and vulnerable consumers or citizens living below the poverty line in the region where the E. headquarters is located, through the application of virtual energy compensation
- xi. The decision of the Ministers of Finance, Economy and Development, Infrastructure and Transport and Environment and Energy of par. 2 of article 134 of Law 4001/2011 may provide for special conditions for the E. Com. acting as operator of charging infrastructure for electric vehicles
- xii. The License Regulation of article 135 of Law 4001/2011 may provide for special conditions for the licenses granted to the E. Com.

In addition, the activation and expansion of virtual net metering tools, as well as net metering, a tool to combat energy poverty, is a law of great importance. It explicitly establishes the purpose of an E. COM. activity, the ability of an Energy Community to take action to assist vulnerable consumers and address energy poverty among citizens living below the poverty line in the region where the E. Com. is located, regardless of whether they are members of the Energy Community, such as energy delivery or offsets, home energy retrofits, or other measures that reduce energy consumption in the homes of the above²⁸. The law provides for Energy Communities to install photovoltaic systems

²⁸ Heinrich Bell Foundation Thessaloniki Office, *Building Energy Communities. Energy in the hands of citizens*, September 2019

and small wind turbines to meet the energy needs of its members and vulnerable consumers or citizens living below the poverty line within the region where the E. COM. is located, with virtual energy offsets with a maximum installed capacity of 1MW.

i. Establishment of an E. Com through merger

Two or more E. Com. can be merged. In order to merge, the E. COM. must adopt a similar method of disposal of surplus usage (in accordance with the provisions of Article 6§§2) and have its registered office in the same region. The procedure to be followed in the merger is set out in Article 10§4 of Law 1667/1986 (Article 9§5). According to this article, a resolution of the general assemblies of the merging E. Com. with an increased (statutory) quorum and majority is first required. This is followed by the drafting of the Articles of Association of the new E. Com., their submission and approval by the GENERAL COMMERCIAL REGISTRY. Chamber of the regional unit of the registered office of the new E. Com. and the registration of the new Articles of Association in the E. Com. register of GENERAL COMMERCIAL REGISTRY. Upon its registration in the E. Com. register of GENERAL COMMERCIAL REGISTRY, the new E. COM. acquires a separate legal personality and assumes all the rights and obligations of the E. COM. that were merged and continues all pending litigation to which the merged E. COM. is a party.

j. Formation of an E. Com by Conversion

The conversion of any type of cooperative into an E. Com. in accordance with the provisions of the Law is permitted (Art. 9§6 L.4513/2018). Therefore, any cooperative, regardless of its nature and purpose, has the possibility to be converted into an E. Com. The decision to convert is taken by the General Assembly of the members of the cooperative to be converted, with an increased (statutory) quorum and majority (Articles 13, 14 of L.4384/2016, Articles 17, 18 of L. 4423/2016, Article 16 of L. 1667/1986).

Moreover, any type of company, profit-making or not, can be transformed into an E. COM. (Article 16§1, L 1667/1986). If it is a joint stock company, a resolution of the general meeting of shareholders is required, adopted in accordance with Articles 130§3 and 132§2 of Law 4548/2018 (Article 16§2, L 1667/1986).

If it is a limited liability company, a resolution of the general meeting of shareholders is required, adopted in accordance with Article 38§1 of Law 3190/1955 (Article 16§2, Law

1667/1986). The conversion of a general or limited liability company requires a unanimous resolution of the shareholders (Article 16§3, Law 1667/1986). In any case, the decision must be taken in the form required for the incorporation of the E. COM. and must contain the necessary elements of the articles of association in accordance with the law, so in essence we must again follow the proportional procedure of the existing recommendation (Article 16§4, L 1667/1986). With the entry of the decision in the E. COM. register of the G.E.M.I., the transformation and the new E. COM. will enter into all the rights and obligations of the transformed companies and will continue the pending processes without interrupting them (Article 16§5, L 1667/1986).

k. E. Com Associations

Article 10 of the Law provides for the possibility of establishing E. COM. unions and federations, i.e. there are three levels of E. COM. organization in Greece. Thus, the primary E. COM. issue is for the establishment of secondary (associations of energy cooperatives) and the secondary compel the establishment of a tertiary (federation of Energy Cooperatives of Greece). The same article regulates the functioning of the associations and the federation, while the provisions of Article 12 of Law 1667/1986 (Article 10§3) are applied proportionally. The federation of Energy Cooperatives can be formed by at least five E. Com. (founding members) who reside in the same region.

The purpose of the association is to coordinate and promote the E. COM. activities of its members (Article 10-1).

The same steps apply to the formation as to the establishment of an E. COM., i.e. a statute is drawn up, submitted and approved by the Ministry of Environment, and the Union is published in the E. COM. register, while its statute contain by analogy the mandatory data of the Article 7 of the Law. The Union also has its own bodies, namely its general assembly, its Management Board and its supervisory board. Especially for the general assembly it is foreseen that it consists of representatives of the E. COM. participating in the Union. The representatives are elected by the general assemblies of the E. COM.-members of the Union in a ratio of one in five members of the EC, that is if an E. COM. has ten members, then participates in the general assembly of the Union with two representatives. If the remainder of the division of the number of members exceeds the number two, the E. COM. elects another representative, that is if the E. COM. has 13 members, then participates in the general assembly of the Union with three representatives. An E. COM. member with less than five members elects one representative, while an E. COM. member with more than 50 members elects ten

representatives. Each representative has one vote in the general assembly of the Union (Article 10-1).

In the meetings of the Management Board of the Union are invited to take part, without vote, a representative of the labor center and a representative of the union of municipalities and communities of the Region (article 12-5, L 1667/1986). All other issues concerning the general assembly, the Management Board and the supervisory board are regulated in accordance with the provisions of the Law and L 1667/1986, which refer to the respective bodies of the primary E. COM. (article 12§1, L 1667/1986). The Associations of energy cooperatives of the whole country can establish the Federation of Energy Cooperatives of Greece for the coordination and the general representation of the energy cooperative movement of the country. The General Assembly of the Federation is attended by all the Associations with two representatives each, regardless of the number of members each has. The representatives are elected by the general assemblies of the associations (article 10§2)

i. Expiration of an Energy Community

The end of an E. Com. occurs either with its dissolution, with its merger with another E. Com. or with its bankruptcy. These two cases are dealt with in Article 9 in conjunction with Articles 10, 11 and 16 of Law 1667/1986.

By way of de from the provision of paragraph 1 of Article 10 of Law 1667/1986 (Civil Cooperatives and Other Provisions), the Energy Community is dissolved

- i. if the number of its members falls below the limits of paragraph 2 of Article 2, or if the conditions of paragraph 3 of the same Article or of paragraph 4 of Article 6 are no longer met and the members are not replaced or supplemented in accordance with the aforementioned provisions of a quarter.
- ii. when its duration expires
- iii. by decision of the General Assembly
- iv. when it is declared insolvent. The resolution of Energy Community is followed by liquidation. If Energy Community is declared insolvent, the procedure will be carried out by Bankruptcy Code. The liquidation shall be carried out by two liquidators appointed by the General Assembly. The Energy Community shall be deemed to continue after its dissolution as long as the liquidation lasts. During the liquidation, the pending cases shall be dealt with and in particular the claims shall be collected, the assets shall be realized and the debts of Energy Community shall be settled. From any positive balance of the liquidation, the

issued cooperative shares and their contributions are returned to the members. The remaining balance shall be distributed to associations or unions or communities of producers or bodies or associations of persons or organizations or other non-profit legal entities active in the fields of environmental protection and energy in the region where the Energy Community is located. For the Energy Communities of article 6 (4), the remaining balance shall be distributed to the members according to their participation in the cooperative capital.

In the event that during the liquidation it is not possible to transfer licenses or a power plant of HECHP or RES or a hybrid power plant of Energy Community in accordance with paragraph 2 of Article 12, the production license, the approval decision of Environmental Terms, the Installation License, the offer of Connection Terms and, in general, all licenses and permits issued for it shall expire.

The above procedure does not apply to installations that have been put into trial or normal operation at the time of dissolution of the Energy Community. These facilities may be transferred to any third party. The new owner who acquires the installation in derogation of Article 12(2) shall not receive Operating Aid, but shall be compensated:

- Only in the context of the participation of the power plant in the electricity market, as provided for in paragraph 19 of Article 3 of Law 4414/2016 for a power plant that is in Interconnected System or
- Pursuant to paragraph 10 of Article 8 of Law 4414/2016 for a plant located at Interconnected Island.

3. Members of an Energy Community

a. Introduction

The nature of the membership is critical to the success or failure of the activity in question. It is a cooperative form that can creatively combine the presence of individuals and legal entities among its members for the benefit of the enterprise.

This fact is important in view of the "distrust" of the legislator towards the participation of legal persons in other types of cooperatives, historically prevalent in rural areas. The commercial success of E. Com. in Greece may underline the importance of such cooperation.

The main provisions governing the members of E. Com. are contained in Article 2 of the Law. In addition, the provisions of Article 2§3-9 and Article 4§2-4 of Law 1667/1986 are

applied. Information on the members can be found in other provisions of the two laws, such as the articles on the shares or the organs of E. Com.

b. Identity of the members

The identity of members of an E. Com is defined in Article 2§1. First, any person who has the capacity to perform legal acts, as well as a private or public entity, may become a member of an E. Com. Since no distinction is made in the law, we can safely assume that foreign individuals and legal entities can participate as members of an E. Com, provided they meet the other requirements of the law.

Local and regional authorities are a special case, as their participation in an E. Com. is unhindered, as the restriction established in Article 107 of Law 3852/2010 does not apply, as Article 2 of Law L 4513/2018 introduces an explicit exception.

It should be noted that Article 2§3 L 1667/1986 prohibits a member of an E. Com. from being at the same time a member of another E. Com. with the same registered office and the same purpose (Art.4 L 4513/2018). This means that a natural or legal person under private law can be a member of another E. Com. with a different registered office and the same purpose or with the same registered office and a different purpose. Legal persons under public law and the local and Regional Authorities are exempt (Article 2§4 L. 4513/2018) and may participate in more than one E. Com. as members, in derogation of Article 2§3 of Law 1667/1986.

Among other things, the E. Com. is required to keep a register book of members, in which the date of registration, name, patronymic, residential address (in chronological order), number of shares (and value) and the date of any cancelation of members are recorded. In E. Com. with more than a thousand members, the register of members must be kept electronically (Article 9§1, L 1667/1986).

c. Registration

The founding members of a Energy Community acquire the status of member upon registration of the statutes in the register Energy Communities of the G.E.M.I. From that moment on, a written application to Management Board is required to become a member of a Energy Community. The bylaws may contain specific conditions regarding the application (e.g. type, time, place and person responsible for submitting the application, additional conditions that must be met in the person of the candidate member, etc.). The

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Board of Directors shall decide at its first meeting after the submission of the application whether or not to accept it. If the decision is positive, the applicant now acquires membership. His registration as a member will be approved by the next general meeting of Energy Community. Until this approval, the new member does not have full rights. In particular, the participation of new members in the decision-making processes and the possibility of their promotion to committees is only possible after their registration has been approved by the General Assembly.

Although Article 2§4 of Law 1667/1986 does not mention that the decision of the General Assembly can override the decision of Management Board by refusing to register the member. We believe that the General Assembly has this possibility, otherwise the approval procedure would have no meaning. It is understood that the statutes may include a provision for the General Assembly to be bound by the decision of Management Board, in a sense delegating exclusive jurisdiction to Management Board. This is not considered to be overly binding as the constitution can be amended at any time by a simple majority of the members of Energy Community. The General Assembly also decides on the number of applications for registration rejected by the Board.

The decision of the General Assembly shall be communicated to the party concerned within twenty days of the completion of its work. The decision of the General Assembly may be appealed against within ten days of its notification to the Magistrate's Court of the region in which Energy Community is located. 77 If no notice is given, the same time limit shall apply from the date on which the party concerned becomes aware of the decision. The decision of the Magistrates' Court is subject only to an appeal filed in the Single Member Court of First Instance of the District where the Energy Community resides within ten days of notification of the decision of the Magistrates' Court. The decision of the Single Member Court of First Instance is not subject to any appeal, so with it the dispute over the registration or not of the interested party as a member finally ends, whether it has a positive or negative outcome for him. The Magistrates' Court and the Court of First Instance adjudicate in the interlocutory proceedings. If the decision of the Magistrates' Court is not served, the appeal is filed within two years from the publication of the decision.

In addition, on the basis of Article 3(3) of the Law, in conjunction with Articles 2(7), 8, 9 and 4(1) of Law 1667/1986, there are three other cases in which new members are admitted to the Energy Community, namely resignation, exclusion and death of a member. A person who fulfils the conditions of the law and the articles of association may become a member of Energy Community following the transfer of the compulsory cooperative share of a member who resigns or is excluded from the cooperative. The transfer may be for an onerous (sale) or gratuitous reason (gift). The law does not provide

for the possibility of prohibiting the transfer of shares from the articles of association, so that every member who leaves or is excluded from the Energy Community has the right to transfer his compulsory share. This is subject to the approval of the Board of Directors. In the event that the Management Board does not give its consent, the transferring member (and/or the candidate member) may seek judicial redress and request that the decision of the Management Board be reversed. In accordance with the application of Article 101 of the Civil Code, Article 5§8 of Law 1667/1986 and Article 17§4 of the Code of Civil Procedure, the Court of First Instance of the region where the Energy Community is located shall have exclusive jurisdiction to invalidate the decision of the Management Board, within a period of 30 days from the relevant decision of the Management Board. Invalidity shall also be determined by the court if a member who has not consented or has a legal interest files an action to that effect. In the event of the death of a member, the statute, which must contain a specific provision, is solely responsible for the fate of the cooperative share. In the event of the dissolution and liquidation of a legal entity that is a member of Energy Community, the fate of its compulsory share is the same as in the event of the withdrawal of a member. The liquidator may dispose of the share (a gift is not possible in this case), subject to the provisions of Article 3§3 and with recourse to legal protection.

d. Relations between members and E. Com.

The Articles of Association establish at least the rights and obligations of members with respect to Energy Community ²⁹. Therefore, on this point, there is absolute freedom in the drafting of the bylaws. However, there are points in the law, and in particular in Law 1667/1986, that establish mandatory rights and obligations of members. Therefore, in addition to what is provided on the basis of the exercise of the rights and obligations of the members, the bylaws will contain provisions for the following points (and if they do not contain them, will be valid by law):

i. Rights of Members

- Right to attend general meetings (Article 3§1).
- Right to vote and be elected (Articles 6, 7, Law 1667/1986).
- Right to participate in the distribution of annual surpluses (only in the Energy Community, which at its establishment and throughout its duration, 50% plus 1 of its members are natural persons, Article 6§4).

²⁹ Article 5d, L. 4513/2018

- Right to participate in the distribution of the balance of the liquidation of Energy Community (only in Energy Community, which at its establishment and throughout its duration 50% plus 1 of the members are natural persons, Article 9§2).
 - Right to withdraw from Energy Community (Article 2§7, L 1667/1986)
 - Right to take over the cooperative share in case of resignation or cancellation (article 2-9, L 1667/1986)..
- ii. Obligations of a member
- Obligation not to participate in another Energy Community located in the same region and having the same purpose (Article 2§3, L 1667/1986).
 - Obligation to receive a compulsory cooperative share (Article 3§1).
 - Obligation to pay, in addition to the amount of the compulsory share, an additional contribution proportional to the net assets of Energy Community ³⁰.
 - Obligation to pay a certain amount of money to cover losses of Energy Community in accordance with the provisions of the Articles of Association and the decision of the General Assembly (Article 4§3, L 1667/1986).
 - Obligation to participate and contribute to the activities of Energy Community³¹.
 - Obligation to avoid acts detrimental to the interests of the cooperative and obligation not to compete (Article 4§3, L 1667/1986).

Law 4618/2019 (Articles 11-13 L.4513/2018, supplemented by Article 8 of L. 4618/2019) clarified that members of an Energy Community cannot have insurance obligations solely by virtue of their membership. The members of Energy Community participate in it because it serves their interests and not because they work in it. The insurance coverage of those associated with an employment relationship with Energy Community is completely different from simple participation as a member.

e. Loss of membership

Loss of membership in an Energy Community can be divided into two categories: voluntary and compulsory. Voluntary loss occurs when the member decides to leave Energy Community obviously because his participation in it no longer serves his interests. The forced loss obviously occurs with the death of the member if it is a natural person, with its dissolution or bankruptcy if it is a legal entity and with its deletion from

³⁰ Article 4§3, L 1667/1986

³¹ Article 4§3, L 1667/1986

Energy Community Article. 2§§7, 8 of L.1667/1986 regulate the cases of resignation and expulsion, while the other relevant provisions apply to the others.

- i. Resignation: any member of E. COM. may resign at any time, after notifying the Board of Directors in writing at least three months before the end of the fiscal year (Article 2§7, L 1667/1986). The Statute lays down the conditions under which members may resign (Article 5d), the most important of which is the possibility of providing for a minimum period of retention in the EC. A mandatory retention period may not exceed 3 years. Loss of membership occurs, as the wording of the provision indicates, at the end of the financial year
- ii. Death, dissolution, bankruptcy: Article 4§1, 2nd sp. expressly provides that the deceased partner shall be extinguished at the end of the financial year. There is no explicit reference to the case of a legal entity, but by analogy we assume that the legal entity that has been dissolved or has gone bankrupt is deleted at the end of the fiscal year in which the dissolution or bankruptcy occurred.

letion: the Statute lays down the conditions for the deletion of members (Articles 5d and 2§8 of L.1667/1986). From the provisions we conclude that the whole procedure is left to the discretion of the members of E. COM. through their statutes. The only case in which removal is mandatory is the violation of the obligations assumed by the member by virtue of his capacity and the concomitant damage to the interests of E. COM. by this violation. In other words, the mere breach of the obligations by the member is not sufficient, it must result in damage to the interests of E. COM. Obviously, the statute will provide for the cases of breach that are detrimental to the interests of E. COM. (e.g., it will provide that the breach of the statutory duties will result in the member's removal) or that clearly result from the member's actions (e.g., breach of the duty to cooperate)

As for the procedure, the removal of the member is decided by the General Assembly. The decision is taken with an increased quorum (2/3 of the members) and a majority (absolute majority of all members) of article 5§§4, 6 ed. 2 of L.1667/1986. The expelled member has no right to vote in the General Assembly³². The decision on the deletion is communicated to the deleted member with an extract from the decision of the General Assembly, which also contains the reasons for the deletion. The deleted member may appeal against the decision on his deletion before the court of the district in which E. COM. has its seat within 2 months after service of the relevant decision. If no service is affected, the same time limit shall apply from the date on which the person

³² Article 98 of the Civil Code

concerned becomes aware of the decision by other means, e.g. by sending it by post.

An appeal against the decision of the Magistrates' Court may only be made to the Single Member Court of First Instance of the district of E. COM.'s registered office within ten days of service of the decision. No appeal shall lie from the decision of the Single Member Court of First Instance, so that the controversy as to the removal or non-removal of the party concerned as a member shall be finally terminated, whether it is favorable or unfavorable to him. The Court of Justice and the Court of First Instance shall give judgement by way of interim measures. If the decision of the Court of First Instance is not served, the appeal shall be lodged within two years of the publication of the decision. The loss of membership shall take effect from the date of publication of the final decision dismissing the appeal or from the date on which the period for lodging the appeal expired

f. Shares' return process.

Article 2§9 of L.1667/1986 was amended by Article 76§1 of L.4583/2018 and now provides that the cooperative share that contributed to its nominal value shall be returned to the withdrawing member or to the member who left the E. COM. at its market value, whichever is lower, no later than three months after the approval of the balance sheet for the year in which the withdrawal or write-off occurs.

The amendment was very correct and successfully solved a problem that has troubled cooperatives by following settled case law that says the cooperative share should always be attributed to its actual value. Its value is contrary to cooperative logic because the cooperative share is an indirect instrument of the shareholder's contribution to the furtherance of the common purpose and not a capital investment from which the investor expects, among other things, the achievement of goodwill in the capital he invests.

This regulation determines the value of the share allotted to members by withdrawal, foreclosure, transfer, or inheritance at its nominal value and not at its real value, since the cooperative share does not adjust its value based on earnings or net worth. The cooperative, like corporations, has a fixed value and this is equal to its nominal value and therefore the amount of money paid in by the member. The aim is to ensure that the cooperative share is not subject to investment, hoarding or speculation, which is contrary to cooperative ideals.

Finally, to avoid cases of liquidity deficit or bankruptcy of cooperatives unable to pay the real value of the share when it is higher than the nominal one, and to avoid a financial war between cooperatives. Not only the compulsory shares but also the voluntary shares are returned to the withdrawing member. This also applies to the voluntary shares, since the legislator does not distinguish between compulsory and voluntary shares. Moreover, the E. COM. Statute determines the procedure for the return of shares (Article 5e). The district court of the district in which E. COM. has its registered office shall have jurisdiction over disputes concerning any claims against E. Com. for the return of its share (or shares) by the withdrawing or cancelled member or its universal successors, irrespective of the value of the subject matter of the dispute.

g. Liability of the members

Pursuant to article 4§4 of Law 1667/1986, there are unlimited and limited liability of E. Com. In the case of unlimited liability, the member is individually and jointly and severally liable for the debts of the E. Com. (not only up to the amount of his financial contribution to the capital of the E. Com., but also with all his personal assets). In the case of the E. Com. with limited liability, on the other hand, the member is also personally and jointly and severally liable, but only up to a certain amount laid down in the articles of association (which may be equal to the value of the cooperative share or a multiple thereof). The level of the member's liability is not consistent, as the members' liability changes as the cooperative capital increases (new shares for the members).

As a result, it is clear that the member's liability to E. Com's creditors is primary rather than secondary (members do not have the "benefit of discussion"). The member is liable not only for debts incurred during his participation in the E. Com, but also for debts incurred prior to his membership. However, he is not liable for any debts incurred as a result of his withdrawal.

4. Energy Community Institutions

a. Introduction

According to articles 5-8 of Law 1667/1986, the basic institutions in an E. Com are the general assembly and the Management Board, with a supervisory board that is also mandatory if certain conditions are met.

The institutions are classified into two types: administrative bodies (general assembly and Management Board) and supervisory bodies (the supervisory board and the auditors). Only if the number of E. Com. members exceeds twenty-five (25) is it necessary to elect a supervisory board.

The articles of the statute allow for different definitions, so the minimum number of members can be less than 25, and an E. Com. may always have a supervisory board if its members so desire (article 81, L 1677/1986).

b. General Assembly

All members who have no outstanding debts to E. Com are invited to the General Assembly³³. Each member has one vote in the general assembly, regardless of the number of cooperative shares it owns³⁴. Members-legal entities participate in the general assembly through a natural person, legal administrator, who represents them, and they have only one vote.

Members must attend and vote in person at the General Assembly, they cannot be represented by other members or third parties. There is one exception to the non-personal participation of all E. Com. members in the general assembly, and that is the representative general assembly. In this case, the manner in which they exercise their representative duties and the manner in which they are rescinded are governed by the articles of association (article 51, L 1667/1986).

Responsibilities: The general assembly is explicitly designated as the supreme body of the E. Com., and thus has exclusive competence for certain issues, as described in article 62 of Law 1667/1986.

Specifically:

- a) The amendment of the statute.
- b) The merger, the extension of the duration, the dissolution, the liquidation, the conversion and the revival of E. Com. (and Article 9§1c).
- c) The adoption of special labor and personnel regulations.
- d) Shareholder's entrance and withdrawal from the Energy Community.
- e) The general terms of the activities of E. Com., depending on its purposes³⁵.
- f) Approval of the balance sheet and annual results (article 93, L 1667/1986).

³³ article 5§1, Law 1667/1986 in combination with article 8§3L.4513/2018

³⁴ Article 3§2 L. 4513/2018

³⁵ article 6§1, Law 1667/1986

g) The election and discharge of all responsibilities in secondary organizations of the Administrative and Supervisory Board and the representatives of E. Com.

h) The imposition of a charge to the members for the treatment of extraordinary losses in order to deal with emergencies or other exceptional situations (article 4§3, L 1667/1986).

In addition to the foregoing the general assembly's exclusive competence extends to a variety of other issues. Such as:

- a) The general assembly determines how the E. Com. surpluses for the fiscal year will be disposed of (Article 6§2 L. 4513/2018).
- b) The general assembly may decide that a portion or all of the surpluses of use will be available for local utilities related to the adequacy and supply of raw materials, fuel, and water after the regular reserve has been withheld in islands with a population of less than 3,100 inhabitants if participants are only local or regional authorities (Article 63, L.4513/2018).
- c) In an E. Com. with at least 15 members (or 10 if its registered office is on an island with a population of less than 3,100 inhabitants), the general assembly may decide that the surpluses of the year after deducting the regular reserve are distributed to the members, if the articles of association contain a relevant provision.
- d) The general assembly appoints the two liquidators who will carry out E. Com's liquidation (Article 92). The general assembly approves the registration of the new members (article 2§4, L 1667/1986).
- e) The general assembly rules on applications for membership registration that were rejected by the board.
- f) The general assembly decides on the exclusion of a member from the E. Com. (article 2§8, L 1667/1986).
- g) The general assembly decides on the provision of compensation to the members of the Management Board proportionate to the time of their employment. (Article 7§5, L 1667/1986).
- h) The general assembly decides on the imposition of an extraordinary contribution to the members if the E. Com. is unable to pay its overdue debts or if, during the preparation of the balance sheet, it is discovered that the liabilities exceed the assets by 1/3 of the total amount of the liability of all members. (Article 11§1, L 1667/1986).
- i) The general assembly elects the Electoral Commission, which conducts the elections for the members of the E. Com. bodies (Article 5-7, Law 1667/1986).

The general assembly can either transfer responsibilities that concern the general terms of E. Com's activity depending on its purposes to the Management Board (article 63, L 1667/1986) or act as a deciding body for any non-specifically provided issue.

The general assembly can be either regular or extraordinary. Ordinary is a general meeting held once a year, within a maximum of six months of the fiscal year's end. The statute may allow for the regular general meeting to be held twice a year (article 5§2, Law 1667/1986). The Management Board is required to invite the members. The invitation specifies the location, date, and time of the assembly, as well as the topics to be discussed. The invitation must be sent to members at least seven days before the general meeting. Any other general meeting than the regular one is considered extraordinary.

According to Article 58 L. 1667/1986, a General Assembly decision that is contrary to the law or the statute is void.

c. Management Board

The Management Board is the body that implements the general assembly's policies, controls E. COM.'s daily operations in collaboration with its employees (if it has any) and ensures its progress.

The articles of association specify the number of members of the Management Board. It cannot have fewer than three members. The articles of association define the term of office of the members, which cannot be more than four years or less than two years (article 71, L 1667/1986).

The position of Management Board member is honorary and should not be compensated. Members of the Management Board, as an exception, may be compensated commensurate with the time of their employment with administrative duties, by decision of the General Assembly. This compensation is not a salary, nor does it give rise to any rights or claims under labor or insurance legislation (article 75, L 1667/1986). The general assembly elects its members. Voting for appointments is required to be done in secret (article 55, L 1667/1986).

In accordance with the provisions of the statute, the Management Board administers and represents the E. Com. As a result, it has both administrative and representational powers, as it represents the E. Com. in and out of court. It only has the responsibilities that are expressly assigned to it by statute and law, or that are delegated to it by the general assembly.

d. Supervisory Board

Article 8 of Law 1667/1986 establishes the supervisory board. It is analogous to a company's internal audit or inspection body, as it is composed of at least three members elected by the General Assembly. If the number of E. Com. members is less than twenty-five, the election of a supervisory board is optional.

The same person may not serve on both the Management Board and the Supervisory Board, and members of the two bodies are not permitted to have any relationship with one another beyond the second line.

e. Auditors

In addition to the internal audit, there is also the external audit, which certifies the correctness and accuracy of the company's accounting representation and financial results. Article 5ib L.4513/2018 states that the appointment of auditors for the first fiscal year is critical, as stated in the E. Com. statute. The auditors are also required to publish their report in the G.E.M.I (art. 8 7 L.4513/2018).

IV. Energy Communities Potentials

1. Introduction

An E. Com. can generate, sell, or consume electricity and heat generated by renewable energy sources (RES), such as wind and photovoltaic projects, or biogas and biomass plants. It can also be involved in the supply of electricity and gas, as well as the installation of district heating systems and desalination plants, as well as the installation and management of alternative fuel infrastructure and vehicles (eg electric).

Given that the E. Com revolves around the production of energy from renewable sources, several additional incentives focus on the installation and operation of RES and High efficiency Cogeneration of Heat and Power (HECHP). Energy Communities can also benefit from virtual net metering, which was previously restricted to professional farmers

and legal entities formed under public or private law to pursue public or other public interest purposes.

The Energy Communities are active in the areas of Renewable Energy Sources, high-efficiency electricity and Heat Cogeneration, rational energy use, energy efficiency, sustainable surface transportation, demand-side management, and energy generation, distribution, and supply at the local and regional levels.

The following are some of the fundamental technologies that can be integrated into an E. Com:

- Wind Power.
- Tidal Power.
- Solar Power.
- Biomass Energy.
- Geothermal Power.
- Biofuels.
- Hydroelectric Power.
- Hybrid Power Systems.

An energy community can also develop or provide:

- District heating systems
- Energy Storage Devices
- Electric automobiles and charging stations.

2. Wind Power

Wind energy is defined as energy generated by wind. It is classified as a gentle form of energy and is a component of clean sources, or energies that do not pollute the environment. Wind energy is an excellent solution because it is a plentiful fuel that generates electricity. The benefits to a community from the development of the wind industry are diverse. Wind turbines use wind energy to generate electricity. A wind farm is a collection of wind turbines.

According to law 3851/20109 on Renewable Energy Sources, the special subsidized sale price (operating aid) for wind turbines up to 50kw is 250 euros per MWh of electricity produced. Pricing is based on the price of electricity absorbed by the System or the Grid, including the Network of Unconnected Islands, in euros per megawatt hour (MWh).

3. Solar Power

Photovoltaic (or PV) systems are one of the renewable energy applications that Greece is particularly interested in. A photovoltaic system generates electricity from solar energy by taking advantage of the photovoltaic effect. A PV system consists of one or more panels (or panels, or as they are commonly referred to in commerce, "crystals") of photovoltaic cells (or "cells" or "cells"), as well as the necessary devices and devices for the conversion of electricity produced in the desired form.

Photovoltaic systems are an excellent technology for integration in E. Com, with a 5% operating aid in the prices received by solar power in energy communities in relation to the average price resulting from competitive processes (financial incentives).

4. Biomass Energy

Biomass is any material produced by living organisms (livestock waste, food industry waste, wood and other forest products) that can be used as a source of energy (pellets).

Official Government Gazette 1450/2013 defines "biomass" as any of the following:

- i. products derived from agriculture or forestry that can be used as fuel to recover their energy content,
- ii. the following wastes:
 - crop waste from agriculture or forestry,
 - vegetable waste of the food industry, provided that the released heat is recovered,
 - fibrous vegetable waste from the production of virgin pulp and the production of pulp paper, provided that a co-incineration process is applied to the waste at the production site and the heat released is recovered,
 - cork waste, and
 - wood wastes other than wood wastes which may contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coatings, and which include in particular wood wastes from construction and demolition.

By biogas, we mean a mixture of various gases produced by the decomposition of organic matter in the absence of oxygen. Raw materials, green waste or food waste, plant material, agricultural waste, and municipal waste can all be used to produce biogas.

5. Teleheating

Teleheating (district heating) refers to the provision of heating via a special network of individual pipes carrying hot water heated in boilers typically located in thermal power plants located far from the consumption area. It is the heating of a city's or a portion of a city's buildings by a central burner rather than individual heaters. Water is heated by burning gas, coal (lignite), or petroleum in a plant that also generates electricity and heat, or vice versa.

6. Desalination

The term "desalination" refers to any process that removes salts from a saline substance, particularly saline water. Desalination is thus a technique for obtaining drinking water from seawater, brackish rivers, and lakes. It is primarily used in areas with a dry climate, a scarcity of drinking water, and access to sea water.

7. Energy Storage Devices

Energy storage technologies are a flexible way to address imbalances caused by increasing the share of RES variables on the Road to Energy Transition. Energy storage technologies are diverse. Energy storage can be integrated into production systems using Renewable Energy Sources (RES), either as a stand-alone or grid-connected installation. The storage unit is critical for autonomous systems because it stores electricity and allows it to be used when RES are in short supply. In grid-connected systems, the storage unit adds value to intermittent renewables by improving supply-demand correlation. Energy storage, when combined with renewable energy, has the potential to increase the amount of energy produced by photovoltaic and wind systems.

8. Electromobility and charging stations

According to the Alternative Fuels Infrastructure Directive and the Trans-European Network for Transport (TEN-T), both of which will be reviewed in 2021, EU members agreed to set deployment goals for publicly accessible chargers for 2020, 2025, and

2030, with an indicative ratio of one charger for every ten electric cars³⁶. Greece, the land of e-mobility. Furthermore, it launched a comprehensive package of incentives to boost EV sales and established the regulatory framework for electric charging infrastructures³⁷. Municipalities should be located. The Law establishes the minimum terms, conditions, and technical requirements for the installation of publicly accessible electric vehicle charging stations:

- fuel stations (already operating or to be licensed),
- parking or rest areas inside ports (already operating or to be licensed),
- covered or open-air car parks,
- vehicle workshops (already operating or to be licensed),
- public or private vehicle testing (MOT) centers (already operating or to be licensed),
- publicly accessible areas, whether public or private along motorways or highways,
- car parks in public or private buildings, and
- terminals and other transport hubs.

The adoption of Law 4710/2020 requires municipalities to install at least one public charger for every 1,000 residents. According to this Law, the development and operation of e-charging stations must be governed by competitive market terms. Electricity Distribution Network Operators are not permitted to own, develop, or operate charging points, with the exception of private charging points owned by Distribution Network Operators for their own use. Potential stakeholders who are eligible may act as an Electric Vehicle Charging Infrastructure Provider, Electricity Service Provider, and Transaction Body all at the same time.

V. Conclusion

In their energy planning, governments place the citizen at the center of their attention. Every decision is made by the citizen, and he or she plays a critical role in the current energy transition. Because energy is a major social good, social acceptance is required to achieve the transition to green energy. Vulnerable households, in particular, must be considered, and the primary focus should be on combating energy poverty. Today's citizen is expected to make and implement decisions for tomorrow.

³⁶ The present and the future of e-charging infrastructure, CircularSynergy2021, <https://www.circularsa.com/media/1178/e-mobility-the-future-ahead-insights.pdf>

³⁷ L 4710/2020 (Government Gazette A142/2020)

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Today Greece has an opportunity. Utilize its available natural resources, such as the sun and air, and achieve its energy transition to clean energy and its dependence on polluting fossil fuels. The end of the oil season has arrived. Tackling climate change and the Paris Agreement call for rapid change, have driven governments around the world to design new energy models based not only on economic and social, but also on environmental issues.

Towards a sustainable future means choosing renewable energy sources. This option is one way. This has been understood by all governments, but the most important thing is that the ordinary citizen has understood the necessity of the energy transition.

Greece has a comparative advantage due to its geographical location and climatic conditions. Their utilization is necessary for the achievement of the energy transformation. To achieve this, the National Energy and Climate Plan must include well-designed models, which will seek a socially equitable transition to a clean future.

One of the greatest problems of our country faces, is energy poverty. Socially equitable transition means that everyone has the same opportunity to participate in the energy transformation and benefit from the benefits of energy transition. A prerequisite is the political will, as well as some necessary and urgent improvements of the institutional framework, which will get over serious obstacles to the installation and operation of solar energy at local level. The economy can only be benefited by emphasizing in small-scale energy production by households, small and medium-sized enterprises, municipalities and local communities so that we would be able to achieve both energy transition and also tackle energy poverty. Energy Communities is in this direction and their main goal is the development of RES, created to achieve a fair and collective energy transition.

There are many benefits such as:

- Tackling energy poverty and the permanent increase of household income with a single intervention.
- Households are converted into small producers of clean energy
- Energy transition takes place in terms of social justice.
- Strengthening the domestic economy and decoupling from imported fossil fuels.
- Effective climate policy to tackle the problem of climate change.

The most important factor in achieving the vision of sustainable development is man. The main reason for a RES project's success or failure is social acceptance. Citizens have the ability to influence energy development through Energy Communities. The locality is strengthened as a result of the Energy Communities, while collaborations and partnerships with public and private bodies are encouraged.

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For the first time, the average citizen recognizes his or her own power, as well as the importance of collaboration. The sharing of experiences and knowledge is critical to the success of energy cooperatives.

Only through the formation of partnerships (associations) will energy communities be able to dominate the global energy market.

With the establishment of the Energy Communities under Law 4513/2018, governments and competent ministries provide citizens with the opportunity to actively participate in the energy transition and energy planning. Citizens, in collaboration with municipalities, regions, and small and medium-sized businesses, will aid in the development of renewable energy in their communities and benefit from minor environmental interventions. Citizens now have a dual role, not only the traditional role of consumer, but also a new role, that of producer (prosumers)

Energy communities are now the vehicle for Energy Democracy, leading to a world where both man and the environment are respected. Local businesses and households participate actively in the production, storage, sale, and overall management of clean energy through the Energy Communities. It is now up to citizens to decide whether they will contribute significantly to energy development by promoting Energy Communities or remain captives of large for-profit energy companies.

The reality in our country is that the E.Com. faces significant development challenges, which jeopardize the institution's effectiveness:

- i. Despite the requirement for directives to introduce simplified procedures for energy communities' RES projects, expensive and complicated administrative procedures continue to apply. Furthermore, the legal framework for energy communities is complicated and fragmented, with numerous laws and ministerial decisions, which adds to the difficulty of developing RES projects by energy communities and can be a deterrent to their formation and citizen participation in their case.
- ii. The development of collective virtual netting schemes, in particular, is extremely limited to non-existent:
 - In the case of small - small - groups, the "heavy" shape of civil cooperatives is ineffective. Registration with GEMI, beginning work in the tax office, bookkeeping and VAT refund, payment of stamps for the share capital, declaration and (mandatory) maintenance of headquarters, and payment of rent, among other things, are all required for the formation of an energy community.
 - Although the energy community model is a suitable vehicle for larger schemes, the aforementioned problems that generally concern the

E.Com. (e.g., access to finance, information, etc.) have hampered the growth of larger collective netting schemes.

- iii. As required by Article 22 (4) (g) of the RES Directive, no tools have been made available to energy communities to facilitate access to finance and information. Access to financing for energy communities is difficult because banks require significant personal guarantees in addition to a certain percentage of investor participation with their own funds, making it difficult to implement even small photovoltaic stations for energy offset. In the EU, the lack of a comprehensive package of financial assistance measures is particularly noticeable. non-profit, as well as collective energy offsetting.
- iv. According to Article 22 (3) of the RES Directive, each State is required to assess the barriers to renewable energy community development in their territory in order to identify any obstacles or difficulties faced by energy communities and to be taken into account when drafting a favorable legislative framework. Greece, on the other hand, has not made such a determination.

As a result of the foregoing, the following phenomenon was observed in the Greek market: private investors with the necessary know-how and/or funds took advantage of the legislation for energy communities to the detriment of genuine local initiatives.

As a result, many of the energy communities that have registered with GEMI so far are shady private ventures.

In response to the aforementioned phenomenon, the Ministry of Environment and Energy decided to eliminate all incentives in all cases. According to Article 160 of Law 4759/2020 [11], beginning January 1, 2022, every E.Com. must compete with private investors in bids to ensure operational support for RES projects.

Simultaneously, this initiative demonstrates unequivocally that it is impossible to recognize the unique characteristics of Energy Communities, which are transformed from competitive advantages to competitive disadvantages. For example, EKOIN's geographically targeted scope, which aims to empower local communities, becomes a competitive disadvantage when compared to private investors who are not bound by the same geographical constraints. As a result of the recent decision, all of the unique characteristics have been turned into competitive disadvantages, and the significant benefits are expected to go unused.

From 2022 onwards, this legislation eliminates any significant incentive to establish an energy community.

The introduction of competitive procedures for RES projects in which all energy communities compete with large private investors is in violation of Article 22 (7) of the

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RES Directive, which states that when designing RES support systems, Member States must take into account the unique characteristics of renewable energy communities so that they can compete on an equal footing with other market participants. Energy communities' development of RES projects is associated with additional social, economic, and environmental benefits when compared to RES projects developed by other market players, which are not taken into account in tendering procedures.

VI. References

1. Regulations

1. Council Directive 2013/18/EU of 13 May 2013 adapting Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources
2. 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
3. Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC
4. Directive (EU) 2015/1513 of the European Parliament and of the Council - of 9 September 2015 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources
5. Greek Law 1667/1986 "Urban Cooperatives" (Government Gazette A' 196/1986)
6. Greek Law 4513/2018 "Energy Communities" (Government Gazette A9/2018)
7. Greek Law 4710/2020 (Government Gazette A142/2020)
8. Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005

2. English references

1. Emi MinghuiGui – IainMacGill, 2018 "Typology of future clean energy communities: An exploratory structure, opportunities, and challenges
2. Ulf .Hahnel, Mario Herberz, Alejandro Pena-Bello, David Parra and Tobias Brosch, 2020 "Becoming prosumer: Revealing trading preferences and decision-making strategies in peer-to-peer energy communities"
3. W. Holz, F. Ulatowski, **Energy Policy in Europe: Internal Dimensions and External Perspectives**, Tectum Wissenschaftsverlag, 2019
4. Wierling A., Schwanitz J., Zeiß J. P., Bout C., Candelise C., Gilcrease W. και Gregg J. S., 2018, "Statistical Evidence on the Role of Energy Cooperatives for the Energy Transition in European Countries",

3. Greek references

1. Ασλάνογλου Μ., Γαλάνης Θ., Δαγούμας Α., Ηλιάδου Αικ., Ηλιόπουλος Κ., Κακαράς Εμμ., Κεκελέκης Μ., Κελεμένης Ι., Κρητικός Μ., Λοβέρδου Τυπάλδου Ε., Παπαδόπουλος Θ., Παραβάντης Ι, Παυλίδης Γ., Πολέμης Μ., Στρατή Α., Συνοδινός Χ., Σχοινά Μ., Τσικόγιας Θ., Φαραντούρης Ν., Φίλης Κ., Χαροκόπος Μ., 2012 Νομική Βιβλιοθήκη, «Ενέργεια – Δίκαιο, Οικονομία & Πολιτική»
2. Ηλιάδου Α, 2021 Νομική Βιβλιοθήκη, «Δίκαιο της Ενέργειας».
3. Φαραντούρης Ν., Φορτσάκης Θ, 2016 Νομική Βιβλιοθήκη, «Δίκαιο της Ενέργειας»
4. Φεφές Μ.,2018, “Αγροτικοί Συνεταιρισμοί. Το νέο νομοθετικό πλαίσιο μετά τον Ν 4384/2016”,
5. Φεφές Μ., 2020 Νομική Βιβλιοθήκη «Ενεργειακές Κοινότητες»

4. Journals/Papers/Publications

1. Barnes A., Can the current EU regulatory framework deliver decarbonization of gas, The Oxford Institute For Energy Studies, 2020
<https://www.oxfordenergy.org/wpcms/wp-content/uploads/2020/06/Can-the-current-EU-regulatory-framework-deliver-decrbonisation-of-gas-Insight-71.pdf>
2. Bee Green- Ερευνητική ομάδα εκ μέρους του Think Bee , 2021, «Ο ρόλος των Ενεργειακών Κοινοτήτων στην Ενεργειακή Μετάβαση στην Ελλάδα»
https://poulantzas.gr/wp-content/uploads/2021/06/%CE%99%CE%9D%CE%A0ThinkBee_%CE%95%CE%BD%CE%B5%CF%81%CE%B3%CE%B5%CE%B9%CE%B1%CE%BA%CE%AD%CF%82-%CE%9A%CE%BF%CE%B9%CE%BD%CF%8C%CF%84%CE%B7%CF%84%CE%B5%CF%82-1.pdf
3. Clean energy for all Europeans package,
https://ec.europa.eu/energy/topics/energy-strategy/clean-energy-all-europeans_en
4. Caramizaru A., Uihlein A. , Energy communities: an overview of energy and social innovation researchGate, 2020,
https://www.researchgate.net/publication/339676692_Energy_communities_an_overview_of_energy_and_social_innovation
5. European Economic and Social Committee «For coordinated European measures to prevent and combat energy poverty», <https://www.eesc.europa.eu/el/our->

[work/opinions-information-reports/opinions/coordinated-european-measures-prevent-and-combat-energy-poverty](#)

6. Farrel John, 2017, From Energy Monopoly to Energy Democracy, Institute for Local Self-Reliance. <https://ilsr.org/energy-democracy-in-4-steps/>.
7. Heinrich Bell Foundation Thessaloniki Office, “*Building Energy Communities. Energy in the hands of citizens*,” September 2019
<https://gr.boell.org/el/2019/04/15/htizontas-energeiakes-koinotites-stin-ellada>
8. Heinrich Bell Foundation Thessaloniki Office, “Energy poverty in Greece 2.0 - Policy developments and social innovation: proposals for combatting it”,
https://gr.boell.org/sites/default/files/2020-12/POVERTY-2EN-FIN-LOW_0.pdf
9. “Heinrich Bell Foundation Thessaloniki Office 2017 “The present and the future of citizens' energy”
https://gr.boell.org/sites/default/files/to_paron_kai_to_mellon_tis_energeias_ton_politin.pdf
10. Νέλλας Α., Ενέργεια και Δίκαιο, τεύχος 26/2017, «Οι ενεργειακές κοινότητες του Ν. 4513/2018: εγχειρόμενα ζητήματα εφαρμογής και προκλήσεις».
11. Rogers, J C; Simmons, E A; Convery, I; Weatherall, A; ScienceDirect, "Public perceptions of community-based renewable energy projects," 2008,
https://www.researchgate.net/publication/222135100_Public_perceptions_of_community-based_renewable_energy_projects
12. "The Greek Energy Sector - Annual Report 2020", an IENE Study (M56),
https://www.iene.gr/articlefiles/iene_meleti_2020_final.pdf
13. The present and the future of e-charging infrastructure, CircularSynergy2021,
<https://www.circularsa.com/media/1178/e-mobility-the-future-ahead-insights.pdf>
14. Τσέκερης Δημήτρης - Υπουργείο Περιβάλλοντος & Ενέργειας, 2017, "Το νέο νομοθετικό πλαίσιο για τις Ενεργειακές Κοινότητες στην Ελλάδα",
http://www.cres.gr/cres/pages/xrisima/news_ppt_2017/news_ppt_20170630.html