

Energy communities in the lignite regions of Greece

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Introduction

Beyond the necessary shift to a carbon-free economy and clean energy, European policy identifies the engagement of society as a prerequisite for the success of the energy transition. The EU's "Clean Energy for All Europeans" package, agreed upon in 2017,

and the subsequent Directives on renewable energy (Directive 2018/2001) and the internal electricity market (Directive 2019/944) laid the foundations for acknowledging the role of citizens, both as energy consumers and producers.

Particularly in Europe's coal and lignite regions, which are currently at the heart of the energy transition, citizen participation constitutes a challenge. Regions that for decades have based their economies on the coal and lignite chain must now transform their local economies, moving away from lignite and coal and towards other sustainable economic activities, all the while ensuring that this transition takes place in a socially just manner.

Through energy communities, local communities can actively participate both in the energy shift of lignite regions towards clean forms of energy and in securing conditions of justice, solidarity and democracy on the path of transition to the post-lignite era.

At a time when rising fossil fuel prices have driven up energy costs, the possibility for citizens to produce themselves the energy they need from renewable energy sources (RES) through energy communities represents an important recourse. Energy communities reduce energy costs via cheap and clean renewable energy; equally importantly, they also offer citizens energy independence, address energy poverty, enhance the decentralization of energy resources and promote the phase out of fossil fuels by providing solutions to existing problems, such as energy saving, heating and cooling.

The aim of this review is to critically assess the current situation of energy communities in the lignite regions of Greece. In particular, it presents the institutional developments, analyzes the challenges faced by energy communities and the potential for their development, while putting forth recommendations for strengthening this institution in the context of Just Transition.

Current situation of energy communities in the lignite regions of Greece

Founding law 4513/2018

The first legislation on energy communities was enacted in 2018 with Law 4513/2018. The law defines energy communities as *“urban cooperatives with the exclusive aim of promoting social and solidarity-based economy and innovation in the energy sector, addressing energy poverty and promoting energy sustainability, generation, storage, self-consumption, distribution and supply, enhancing energy self-sufficiency / security in island municipalities as well as improving end-*

use energy efficiency at local and regional level, by engaging in the sectors of Renewable Energy Sources (RES), High Efficiency Co-generation of Heat and Power (CHP), rational energy use, energy efficiency, sustainable transport means, and management of energy demand, generation, distribution and supply”. Previously, the cooperative entities operating in the energy sector were integrated into other existing schemes, such as urban cooperatives, without being differentiated based on their purpose.

Natural persons (i.e. citizens), legal entities under public and private law (public bodies, companies, etc.), and local government bodies (Municipalities, Regions) can all be members of an energy community.

The activities foreseen for energy communities include the whole spectrum of the energy sector, focusing mainly on RES. The legislative provisions on (virtual) net metering¹ also apply to energy communities.

In addition, the law provided for two types of energy communities, based on the criterion of sharing surplus use among their members: (a) non-profit energy communities, which do not share surplus use among their members, and (b) for-profit energy communities, which

¹ *“Virtual net metering signifies the offsetting of the electricity produced by a self-producer’s RES or CHP plant with the total electricity consumed in the self-producer’s installations, at least one of which is either not located in the same or adjacent area as the RES or CHP plant or, if located, is powered by a different supply. Specifically in the case of an Energy Community (ECom), the electricity produced by a RES, CHP or Hybrid Plant shall be offset against the total electricity consumed in the installations of the EC members as well as by vulnerable consumers or citizens living below the poverty line within the Region where the ECom is based”, Net metering Guide, Hellenic Association of Photovoltaic Companies (HELAPCO), 2021, <https://bit.ly/3GMBVGA>*

share surplus use among their members. Both types share the same scope of activities.

Finally, the founding law regarding energy communities also provided for financial incentives and support measures for the development of energy communities, such as: a) preferential participation in or exemption from competitive bidding procedures for RES and CHP plants to be operated by energy communities; b) exemption from the obligation to pay the annual fee for maintaining the right to hold an electricity generation permit for RES, CHP and Hybrid Plants; c) priority over other candidates in the application process to obtain a generation permit; d) 50% reduction in the amount of the letter of guarantee; e) access to national and European financial instruments as well as to the Development Law and to all financial sources accessible to social cooperative enterprises.

In the present analysis, energy communities are not purely categorized as for-profit and non-profit, based on the founding legislation of 2018, but rather grouped into public benefit and for-profit entities. Public benefit energy communities include non-profit energy communities, as well as local government energy communities (whether for profit or not), which by definition aim at public benefit. Public benefit energy communities usually use net metering to meet their own energy needs. On the contrary, for-profit energy communities constitute a business activity that promotes RES development and provides participants with the financial benefits of selling the energy produced on the market.

Energy communities in numbers

Since 2018, when energy communities were included in the above institutional framework, until today 1003 energy communities have been registered as active and another 33 have been pre-registered in the General Commercial Register (GEMI)². An analysis of the situation of energy communities as a whole across the country was recently presented by the Center for Renewable Energy Sources (CRES)³.

Regarding the energy communities in Greece's lignite regions, based on the data of the General Commercial Registry (GEMI), these amount to 176 and 18 in Western Macedonia and Arcadia, respectively. Their distribution is presented in the table below:

Distribution of Energy Communities in lignite regions	
	Number
Region of Western Macedonia	176
<i>Grevena</i>	2
<i>Florina</i>	63
<i>Kozani</i>	103
<i>Kastoria</i>	8
Regional Unit of Arcadia	18
<i>Megalopolis</i>	2
<i>Tripoli</i>	13
<i>Remaining areas</i>	3

Table 1: Distribution of energy communities in lignite regions
GEMI data analysis (November 2021)

We observe that both the development of energy communities and the characteristics of this development in Western Macedonia and Arcadia differ significantly. In particular,

² GEMI, 2021, <https://bit.ly/3ozJsQN>

³ Centre for Renewable Energy Sources (CRES), October 2021, Statistics on Energy Communities in Greece, <https://bit.ly/3vKhd5c>

most energy communities in Western Macedonia have been established in the purely lignite regions, namely Florina and Kozani. This fact can be attributed to the energy tradition of these two regional units, as well as to the existence of extensive electricity networks in these areas. Nonetheless, the existence of this grid does not guarantee the possibility of connecting the energy communities' renewable energy projects, and, as we shall see below, this constitutes one of the obstacles that hinder the development of energy communities. Arcadia presents a different picture, as there are only two energy communities in the lignite town of Megalopolis, while most (13) are located in Tripoli, the Regional Unit's capital.

The majority of energy communities in Western Macedonia are for-profit, while there are significantly fewer energy communities of public benefit (twelve (12) based on the GEMI registry). In the Regional Unit of Arcadia only one (1) public benefit community exists.

The efforts of local government to participate in the energy transformation are noteworthy, as local government plays a key role in the Just Transition of lignite regions. Typical examples are the energy communities established by the Municipalities of Kozani⁴ and Florina-Prespes⁵, as well as by the Region of Western Macedonia⁶ in cooperation with the 13 municipalities within its borders and the University of Western Macedonia. Moreover, the Region of Western Macedonia

⁴ Municipality of Kozani, Extract of the minutes of the 9/22-04-2019 regular meeting of the Municipal Council of Kozani, 2019, <https://bit.ly/2ZSUwQE>

⁵ ERTNews, "Florina: Energy Community of the Municipality of Florina", 2021, <https://bit.ly/3CLhveQ>

⁶ Region of Western Macedonia, Press Release, 2021, <https://bit.ly/3EB3hxi>

has announced⁷ that it will soon establish another energy community together with the Local Organizations for Land Improvement (TOEB) of the region, in an effort to reduce energy costs and promote the green transition of the Region's agricultural sector. The Region of Peloponnese has also established an energy community⁸, which was the first one established under the relevant founding law (Law 4315/2018); the Municipality of Megalopolis is a member of this entity.

Non-profit energy communities aiming to meet their own energy needs are also of particular interest. In Western Macedonia, nine (9) such communities have already been established, of which three (3) proceeded to form "OFeLOS" (ΟΦεΛΟΣ)⁹, the first network of non-profit energy communities.

Analyzing the data of the Hellenic Electricity Distribution Network Operator (HEDNO)¹⁰ on the applications for the connection of RES and CHP plants, as well as the requests from self-producers using net metering, illustrates the degree of energy communities' projects development as well as their penetration in the energy mix.

⁷ Region of Western Macedonia, Press Release, 2021, <https://bit.ly/3mFi6Nu>

⁸ Ecopress, "The Region of Peloponnese establishes the first Regional Energy Community in the country, immediately after the publication of the new law of the Ministry of Environment and Energy (YPEN) in the Government Gazette", 2018, <https://bit.ly/3BSTjpD>

⁹ OFeLOS, <https://bit.ly/3pv0ShQ>. Ofelos in Greek means benefit.

¹⁰ HEDNO, File of Applications for connection of RES and CHP plants under the responsibility of HEDNO (November 2021) <https://bit.ly/303PIMj>

Connection Applications of RES and CHP Plants							
		Total no. of Applications	Total Capacity (MW)	Not-electrified		Electrified	
				No. of applications	Total Capacity (MW)	No. of applications	Total Capacity (MW)
Greece	Total	59,469	22,677.40	44,285	18,298.90	15,184	4,378.53
	ECom	5,370	4,235.61	4,693	3,769.12	677	466.50
Region of Western Macedonia	Total	4,475	1,937.16	3,426	1,695.84	1,049	241.31
	ECom	686	552.33	643	527.74	43	24.60
Kozani	Total	2,331	1,018.83	1,820	914.84	511	103.99
	ECom	467	372.10	436	352.55	31	19.56
Florina	Total	1,280	1.49	967	1.39	313	0.10
	ECom	205	170.56	193	165.52	12	5.04
Regional Unit of Arcadia	Total	965	347.36	688	203.66	277	143.70
	ECom	66	49.20	63	47.90	3	1.30
Megalopolis	Total	53	11.33	25	9.41	28	1.92
	ECom	8	6.00	8	6.00	0	0.00
Tripoli	Total	423	223.80	248	100.25	175	123.53
	ECom	54	40.42	51	39.13	3	1.30

Table 2: Connection Applications of RES and CHP Plants- HEDNO data analysis (November 2021) - *ECom*: refers to energy communities established under Law 4513/2018

The total installed capacity of RES projects by energy communities amounts to 466.5MW from 677 projects throughout Greece. Interestingly, the applications of energy community projects concern 4,235.61MW out of a total of 22,677.4MW of RES projects in the country, namely corresponding to 18.67% of the country's potential RES generation in low and medium voltage. While the 466.5MW

of installed capacity by energy communities' projects represent 10.5% of the total installed RES capacity in the country, the 4,693 pending energy communities' applications correspond to 20.5% of the requested RES capacity in country's low and medium voltage. This fact shows the dynamics of

energy communities in participating in the RES market.

Specifically with regard to lignite regions, we note that in Western Macedonia the installed capacity of energy community RES projects amounts to 24.6MW from a total of 43 projects. This represents 10.1% of the installed RES capacity in the Region of Western Macedonia. But, the 643 pending connection applications of RES and CHP plants by energy communities represent 19% of the total pending connection applications and 31.1% of the capacity in low and medium voltage in the Region of Western Macedonia, highlighting the dynamic participation of energy communities in the development of RES in Western Macedonia.

Similarly, in Arcadia there is 1.3 MW of installed capacity from three (3) energy community projects, representing just 0.9% of the total installed RES capacity in the Regional Unit of Arcadia, which, however, are not located in the lignite region of Megalopolis, but in Tripoli. Although in the area of Megalopolis there is still no electrified RES project from an energy community, the eight (8) pending requests for connection of RES and CHP projects from energy communities in the area of Megalopolis constitute 32% of the total pending connection applications and 63.7 % of RES capacity in low and medium voltage in the area of Megalopolis. This highlights the future development potential of energy communities in the lignite region of Megalopolis.

The 43 energy communities' projects in Western Macedonia correspond to projects of 11 energy communities, while the 3 projects in Arcadia correspond to 2 energy communities, all of which are for-profit

entities. This illustrates that public-benefit energy communities whose objective is to promote public benefit purposes or to meet their own energy needs, so far have not been active in the energy market.

Furthermore, HEDNO data also highlights the potential of agricultural cooperatives in the renewable energy market, as a different cooperative form, beyond energy communities, that is active in this field. The installed capacity of agricultural cooperatives' projects is 1.01MW and concerns 12 projects, while there are applications for another 14.96MW throughout the country. Only one cooperative within the lignite regions is active in the RES market.

Regarding virtual net metering, HEDNO data¹¹ show that only 28 out of 499 applications nationwide come from energy communities. Specifically in Western Macedonia, of the 57 virtual net metering applications, only nine (9) correspond to energy communities¹²; these are photovoltaic projects with a total capacity of 7.5 MW. These nine applications include seven (7) projects of the energy community of the Municipality of Kozani, while the remaining applications concern projects of two other energy communities. Another request for virtual net metering was recently submitted by the "Dimitrios Ypsilantis Energy Community"¹³, which seeks to install photovoltaic panels in Mavrodendri, Kozani,

¹¹ HEDNO, File of Applications in the Mainland & Interconnected Islands (November 2021) concerning requests from self-producers with virtual net metering, <https://bit.ly/2YqQX3y>

¹² The remaining requests concern citizens, agricultural cooperatives and other natural and legal persons except energy communities.

¹³ Energypress, "The first application for PV connection with virtual net metering was submitted to HEDNO by the non-profit 'Dim. Ypsilantis' Energy Community", October 2021, <https://bit.ly/3GXiYRC>

in order to meet its members' needs. As far as the Regional Unit of Arcadia is concerned, there are four (4) requests for virtual net metering, none of which comes from an energy community.

The current status of virtual net metering requests from energy communities is summarized in the table below:

Applications for connection of RES & CHP stations by self-producers with Virtual Net Metering							
		Total no. of Applications	Total Capacity (MW)	Non-electrified		Electrified	
				No. of applications	Total Capacity (MW)	No. of applications	Total Capacity (MW)
Greece	Total	499	90,78	392	83,25	108	7,52
	ECom	28	18,98	24	17,85	4	1,13
Region of Western Macedonia	Total	57	14,25	44	13,29	13	0,95
	ECom	9	7,53	8	7,5	1	0,03
Kozani	Total	28	11,81	26	11,78	2	0,035
	ECom	9	7,53	8	7,5	1	0,03
Florina	Total	22	1,71	11	0,8	11	0,91
	ECom	0	0	0	0	0	0
Regional Unit of Arcadia	Total	4	3,1	4	3,1	0	0
	ECom	0	0	0	0	0	0
Megalopolis	Total	0	0	0	0	0	0
	ECom	0	0	0	0	0	0
Tripoli	Total	1	0,01	1	0,01	0	0
	ECom	0	0	0	0	0	0

Table 3: Applications for connection of RES & CHP stations by self-producers with Virtual Net Metering
HEDNO data analysis (November 2021) - *Ecom:* refers to energy communities established under Law 4513/2018

Energy community funding

In addition to the financial incentives and support measures provided for in the 2018 energy communities founding law, a number of financial instruments have been developed in order to support energy communities,

which, however, have not yet succeeded in channeling resources to them.

In 2019, under the Competitiveness, Entrepreneurship and Innovation

Operational Program (EPAnEK) of the 2014-2020 NSRF, a package of €25 million was provided for the development of energy communities across the country¹⁴. This program was one of the first financial instruments intended to support the then newly established energy communities. Even though it was announced, it still remains unused, with the 2014-2020 programming period coming to its end.

Furthermore, funds from the national resources derived from greenhouse gas emissions auctioning revenues are directed to the lignite regions, part of which are intended to support energy communities in the lignite regions. A Ministerial Decision (MD)¹⁵ provided for the financing of the lignite regions with 6% of the 2018 public revenues from CO₂ emission allowances auctioning, i.e. €31,412,033.10, through the Green Fund, while the corresponding MD for 2019¹⁶ again provides for the allocation of 6% of the aforementioned revenues (approximately €30.2 million). For 2020, this percentage was reduced to 1% (approximately €5 million)¹⁷, while for 2021 it was set at 4.5% (approximately €45 million)¹⁸.

The above resources are managed by the Green Fund through the funding program *“Financing of projects and actions for the development of sustainable economic activities with a low carbon and environmental footprint in the Regional Units of Kozani, Florina and the*

Municipality of Megalopolis in the Regional Unit of Arcadia from the revenues of emission allowances auctioning”. Of the €31,412,033.10 from the 2018 auctioning revenues, €3,560,000 are earmarked for the support of energy communities in lignite regions through Priority Axis 3: Energy Communities Program. This program provides for the allocation of €1 million to fund support actions and €2.5 million to fund pilot projects. Nevertheless, these funds have not yet been released, nor utilized accordingly. Similar calls need to be announced for the 2019, 2020 and 2021 resources, while the funding from CO₂ auctioning proceeds for the period 2022-2030 to be allocated to energy communities in lignite regions remains to be determined¹⁹.

Resources will also be made available to energy communities in lignite regions through the European Just Transition Fund, under the 2021-2027 Just Development Transition Program.

It is therefore noted that, to date, the development of energy communities in lignite regions has relied exclusively on local community resources, as the funds intended to support them have not yet been activated.

The lack of availability of the resources committed to energy community projects is a major obstacle to the development of public benefit energy communities aiming to meet the needs of their members, as these energy communities face additional difficulties in

¹⁴ Pre-publication of the Invitation of the Program "Strengthening the Establishment and Functioning of Energy Communities", July 2019, <https://bit.ly/3H5FoQQ>

¹⁵ GG B 1149/05.04.2019

¹⁶ HELLENIC MINISTRY OF ENVIRONMENT AND ENERGY/ΔΚΑΡΑ/15474/339 - GG B 584/24.2.2020

¹⁷ HELLENIC MINISTRY OF ENVIRONMENT AND ENERGY/ΔΚΑΡΑ/126440/2480 - GG B 5901/31.12.2020

¹⁸ GG B 5029/ 30.10.2021

¹⁹ Law 4819/2021 provided for the distribution of revenues from gas emission allowances auctions for the years 2021 to 2030, including, inter alia, the lignite regions. Therefore, for this period, the financing of the lignite regions has been secured and the amount to be allocated to energy communities remains to be determined.

accessing funds from private financial institutions²⁰.

Recent institutional changes

The broad framework provided by the founding law for energy communities has greatly facilitated their development. At the same time, however, problems emerged and led to the exploitation of the favorable framework for energy communities, creating distortions. These resulted from RES companies' attempts to exploit the legal framework of energy communities in order to circumvent competition and benefit from both the licensing process accommodations and the high guaranteed prices offered to energy communities. In particular, the possibility for energy communities to implement small RES projects up to 18 MW while enjoying reduced guarantees, no environmental permit requirement, priority in the processing of their connection applications over others and high feed-in-tariffs, has prompted several energy companies to choose this legal form to promote their projects. As a result, the energy market became deregulated and the institution of energy communities began to be discredited.

In an effort to address the existing problems, the Ministry of Environment and Energy initially proceeded to abolish the priority given to energy communities in the assessment of their applications for connection to the grid and established a special priority framework for the granting of final connection offers for RES and CHP plants

by the grid operator²¹. The aim of this regulation was to limit the phenomenon of exploitation of the priority connection privilege mainly by for-profit energy communities, while not completely depriving non-profit energy communities of a basic favorable framework. The priority connection framework was further specified in a Ministerial Decision of the Ministry of Environment and Energy²². With regard to energy communities in lignite regions, the MD provides for a separate priority list and for the assessment of applications to be carried out in parallel with the other applications in the same HEDNO administrative region. In consultation with the Ministry of Environment and Energy, HEDNO is setting up a special assessment team for the applications in the lignite regions, so as to speed up their processing. In addition, priority has been maintained for applications submitted by energy communities with local government participation, energy communities that do not distribute profits, as well as energy communities with more than 60 members.

Subsequent changes, mainly concerning the way energy communities participate in the energy market, were introduced by Law 4759/2020²³. Article 160 of this law brought radical changes and from 01.01.2022 onwards, energy communities will be required to participate in competitive procedures instead of being subject to the feed-in-tariff system that has been in force until now. This provision will apply from 01.01.2023 for Western Macedonia, while there is no respective provision for Megalopolis. This regulation is in line with

²⁰ CRES, Conclusions and Policy Recommendations for the Development of the Energy Communities Institution, 2021, <https://bit.ly/3qbhAVk>

²¹ GG B 940/20-3-2020)

²² As above

²³ GG A 245/09.12.2020

European practice, as RES are now competitive and can stand in the market on their own; nonetheless, it raises issues regarding energy communities' ability to meet the requirements of competitive procedures and compete with large energy companies. In particular, with regard to this newly established institution in Greece, its future has been called into question, as it has not yet been properly integrated into local communities and is already facing issues of insufficient support.

Furthermore, Law 4759/2020 (art.160 par.2) added regulations to the founding law of energy communities (art.5 of Law 4513/2018) regarding energy community members. Specifically, it provided that a member of an energy community whose purpose is the generation of electricity from a RES, CHP or Hybrid Plant and which is supported through an feed- in- tariff contract cannot be a member of another same-purpose energy community operating in the same Region. This regulation resulted in the compulsory amendment of the existing energy communities' statutes, which is also a prerequisite for the assessment of energy community applications for the granting of a definitive connection offer by HEDNO.

Moreover, the same law (Law 4759/2020, article 162), amending the existing legislation (Law 3468/2006, article 14a), provided for an increase in the capacity limit of net metering stations, from 1 MW to 3MW, including virtual net metering. This is a positive provision that leaves greater scope for the development of (virtual) net metering. This provision was implemented on the basis of a Ministerial Decision of the Ministry of

Environment and Energy²⁴, while an interpretative circular was issued for the implementation of Law 4759/2020 provisions²⁵.

Regarding the participation of energy communities in competitive procedures, Law 4821/2021²⁶ provided for further changes with the aim to support small RES producers by excluding them from these procedures. The new law provided for the exclusion of low-capacity photovoltaic plants from competitive procedures, thus enabling natural or legal persons to install photovoltaic plants of up to 500 KW outside competitive procedures, provided that they do not already have 2 projects of that technology outside competitive procedures. Specifically with regard to photovoltaic plants developed by energy communities, it was provided that the same energy community cannot, after 01.01.2022, enter into more than two (2) feed- in- tariff contracts for photovoltaic plants with a capacity of up to 500 KW each, without prior participation in a competitive bidding procedure. Energy communities involving local government bodies (first and second degree local authorities), as well as energy communities with more than sixty (60) members, of which at least fifty (50) are natural persons, may not enter into feed- in- tariff contracts after 01.01.2023. With regard to the Region of Western Macedonia, the above deadlines are extended by one year, while no respective provision exists for Megalopolis.

²⁴ Decision of the Hellenic Ministry of Environment and Energy, ΥΠΕΝ/ΔΑΠΕΕΚ/74999/3024 - GG B 3971/30.08.2021

²⁵ Interpretative Circular of the Ministry of Environment and Energy, ΥΠΕΝ/ΔΑΠΕΕΚ/125699/4613/30.12.2020

²⁶ GG A 134/31-7-2021

The most recent changes in energy community legislation were introduced by Law 4843/2021²⁷ (articles 36-40). Waiving the mandatory majority participation of natural persons in for-profit energy communities, both at the time of establishment and throughout the duration of the energy community, facilitated the establishment of energy communities by companies; this contradicts the spirit of the institution of energy communities, which is to strengthen energy democracy through the active participation of citizens in energy transition. In fact, the obligation to have a majority of natural persons was limited only to the time of distribution of surpluses. Furthermore, failure to comply with the requirement of a majority of natural persons throughout the duration of the energy community has ceased to constitute a reason to dissolve the energy community. Another important change introduced by the new law -contrasting the 2018 founding law- is that energy communities will now have the possibility to transfer stations to natural or legal persons, in addition to other energy communities as previously stipulated. This amendment on the one hand offers more flexibility in transfers; on the other hand, however, it undermines the institution of energy communities by potentially consenting to their reduction through the transfer of stations to the ownership of natural or legal persons. Nonetheless, this law also ensures that the privileges governing energy communities are lost in cases where the latter undertake a corporate transformation.

One of the beneficial provisions of Law 4843/2021 concerns the capacity limit increase of virtual net metering stations,

²⁷ GG A 193/20-10-2021

specifically regarding energy communities. This provision complements the broader regulations on virtual net metering by specifying the capacity limits for energy communities and increasing them from 1 to 3 MW (amendment of paragraph 10, article 11 of Law 4513/2018).

Another significant reform is the waiving of the priority previously given to joint requests of groups of energy communities for a connection offer from the Independent Power Transmission Operator S.A. (IPTO), from 01.01.2021 onwards. This provision attempts to limit market manipulation resulting from the priority given to grouped projects of for-profit energy communities. Nevertheless, it does not satisfactorily address the situation already created during the previous period, which has caused distortions and injustices not only within the electricity market but also among energy communities.

Finally, the Action Plan for Combating Energy Poverty²⁸ acknowledges the key role of energy communities in addressing energy poverty, as they are distinctly mentioned in policy measure M7, "*Utilization of the institution of energy communities to combat energy poverty*". This is an economic and regulatory measure aimed at revising the institutional framework and providing incentives to address energy poverty through the mechanism of energy communities. With a €100 million budget for the period 2021-2030, this policy measure is expected to benefit 90,000 households.

Specifically with regard to lignite regions, policy measure M5 "*Provision of incentives to existing mechanisms for actions related to*

²⁸ Action Plan for Combating Energy Poverty, 2021, ΥΠΕΝ/ΓΔΕ/89335/5599 - 27/09/2021

affected households - Just Transition Areas” aims at installing energy saving and renewable energy systems and technologies in buildings of affected households, in order to meet their minimum energy needs more efficiently and economically, in the areas affected by the lignite phase-out in the power sector. The budget of this expenditure is €210 million for the period 2021- 2030 and is expected to cover 10,000 households in lignite regions through the upgrading of their homes; the stakeholders involved in its implementation are the Ministry of Environment and Energy and the Just Transition Fund.

Integration of European directives

In recent years, numerous regulations have been introduced regarding energy communities; nonetheless, these have rather addressed the participation of energy communities in the market and the shaping of the Greek energy market overall, rather than created a broader framework for their support. In this direction, the revised directive on the promotion of the use of energy from renewable sources (Renewables Energy Directive II, REDII, 2018/2001) and the revised directive on common rules for the internal electricity market (Internal Electricity Market Directive, IEMD, 2019/944) should have already been incorporated since 20.06.2021 and 31.12.2020, respectively.

These directives provide for two categories of communities: Renewable Energy Communities (REC) and Citizen Energy Communities (CEC); furthermore, they call on Member States to secure energy communities’ rights, establish a framework for their operation (where none exists) and

strengthen their promotion and development. European Union (EU) legislation provides a single framework for these ventures by attempting to establish common definitions. It also aims to integrate them in a uniform way into the operation of the electricity market, which, at European level, is moving away from providing aid to renewable energy projects, as there are now mature and even competitive technologies based on fossil fuels. The current EU trend is to include all entities in competitive procedures. The above parameters pose challenges for energy communities across Europe, including our country, even though the institution is relatively new.

The Ministry of Environment and Energy is currently preparing a relevant draft law²⁹, which will be brought forward in the near future; the two Directives will be integrated into this law, so as to create a stable institutional environment for the development of energy communities.

Energy communities in Just Transition planning

Energy communities were completely absent in the initial texts of the Just Transition planning in Greece (Master Plan, Territorial Just Transition Plan (TJTP), Just Development Transition Program (PDAM)). However, in the most recent texts of the TJTPs for Western Macedonia, Megalopolis and the islands of North Aegean, South Aegean and Crete³⁰, and the 1st draft of the PDAM 2021-2023, which were put to public consultation until

²⁹ Reply by the Ministry of Environment and Energy in the context of parliamentary scrutiny, 2021, <https://bit.ly/3pwMiYU>

³⁰ SDAM, <https://bit.ly/3Eaai8j>

25.06.2021³¹, a very positive shift was observed. Energy communities, along with the projects the latter can implement, are mentioned distinctly and are included in the planning and the relevant funding of the PDAM.

In particular, the TJTPs provide for financial support to energy communities to cover part of the cost of self-production and heating systems installations and/or energy upgrading projects³². This provision addresses substantial and existing difficulties in the funding of energy communities, mainly those of a non-profit nature, and strengthens their role in Just Transition.

Challenges in the development of energy communities

Since their establishment (2018) until today, the development of energy communities in Greece has been facing various challenges, especially in the lignite regions.

While it is observed that in lignite regions the development of energy communities finds

fertile ground at the local government level, non-profit citizen energy communities have not enjoyed the same momentum.

Furthermore, the use of net metering by energy communities is still in its infancy. Of the 911 energy communities in Greece, only 16 are active in virtual net metering projects. Out of the 176 energy communities in Western Macedonia, only three (3) are carrying out virtual net metering projects, while in Megalopolis none is engaging in such activity. This is mainly due to two reasons. Firstly, the necessary resources for the development of energy communities have not yet been released and secondly, the grid is saturated.

Despite the legislative provisions for priority access to the grid discussed above, the available 'electricity room' in lignite regions is minimal to non-existent, according to those who have attempted to connect projects to the grid. Moreover, the connection applications for RES and CHP plants, analyzed above, show that the pending applications for RES projects from energy communities constitute 19% of the total pending connection applications and 31% of RES capacity in low and medium voltage in the Region of Western Macedonia. This fact highlights the increased need for grid infrastructure in lignite regions and raise serious doubts regarding the existing grid's ability to cope. The grid's failure to support energy community projects effectively voids the very effort of energy communities to participate in the energy transformation and just transition, while ultimately nullifying the accommodating provisions.

Furthermore, the resources available for the development of energy communities are

³¹ SDAM, <https://bit.ly/3mdhmei>

³² More specifically, paragraph "1.1.2 Recent developments" of the Western Macedonia and Megalopolis TJTPs includes the first reference to the framework of actions undertaken by the country to meet the European climate and energy targets. At this instance, it is acknowledged that "Particularly in these regions, there are certain favorable conditions in relation to the licensing and operation of small projects and the applications of energy communities involving local businesses and residents, while, at the same time, self-production is promoted and supported". Furthermore, in all three TJTPs, in paragraph 2.4.1 regarding the categories of investment operations in the description of activities under Priority 2: Energy Transition - Climate Neutrality, it is stated that actions "supporting energy communities to cover part of the costs of self-production and heating systems installations and/or energy upgrading projects" are included.

limited and have not yet been activated. The provisions of State aid legislation constitute yet another factor that further hinders the release and absorption of funds by energy communities. Public funding must follow State aid rules, which in the case of the energy communities has highlighted problems that have not yet been resolved in order to release the funds. Finally, public funding instruments for local government bodies operating or participating in energy communities remain unspecified.

Political parties and energy communities

The institution of energy communities and its development has been a matter of concern for the political parties, which have highlighted its different aspects in Parliament through parliamentary questions and reports.

In particular, SYRIZA has tabled parliamentary questions and reports on the reduction of CO₂ auctions resources allocated to lignite regions³³, the funding of energy communities via the Recovery and Resilience Facility³⁴, the regulations providing for the inclusion of energy communities in competitive procedures³⁵, grid availability for the connection of energy community projects and their funding³⁶.

KINAL, respectively, has tabled questions on the need to support energy communities in

the wake of the provisions of Law 4759/2020, the cuts in Green Fund resources for the phase-out of lignite³⁷ and grid availability³⁸.

Recommendations

The Green Tank has put forward a number of recommendations regarding the development of the institution of energy communities and their contribution to the Just Transition of lignite regions, either in the context of the Just Transition planning consultation or by commenting on recent institutional developments. These recommendations address the integration of energy communities into the competitive procedures of the energy market; funding instruments; and the broader policy measures required for their support. In particular:

On the framework for energy community integration in competitive procedures

In order to ensure a level playing field, it is important to create a “safety net” for energy communities, with the aim of strengthening their integration into competitive procedures and possibly avoiding the problems that have ensued in other countries, such as Germany. Therefore, the establishment of a specific framework for competitive procedures for RES projects involving only energy communities is recommended.

In addition, a mixed system of feed-in-tariffs and competitive procedures could be adopted as a transitional measure before entering the purely competitive procedures. Specifically, a

³³ Greek Parliament, Question and Request for documents submission, P. Perka, 2021, <https://bit.ly/3GmdY8I>

³⁴ Greek Parliament, Question, S. Famellos, 2021, <https://bit.ly/3pyS8ZK>

³⁵ Greek Parliament, Report, G. Poulou, 2021, <https://bit.ly/3nuWQFr>

³⁶ Greek Parliament, Question, P. Perka, 2021, <https://bit.ly/3vHjvBS>

³⁷ Greek Parliament, Question, G. Arvanitidis, 2021, <https://bit.ly/3Ehrk4b>

³⁸ Greek Parliament, Question, G. Arvanitidis, 2020, <https://bit.ly/2ZkClli>

feed-in-tariff could be maintained as a horizontal support measure for part of the installed capacity (e.g. 1MW for photovoltaics), while, for the remaining capacity, they could be included in the aforementioned competitive procedure involving exclusively energy communities.

At the same time, however, controls on the segmentation of projects should be intensified to avoid manipulation of the energy market.

On funding

In order to support energy communities, it is imperative to set up a development fund (or an intermediary body) specifically for energy communities, in order to facilitate access to loans, provide guarantees, cover the costs of entering competitive procedures, and subsidize projects' preliminary phase costs. Such a measure would be of particular assistance to public benefit energy communities, which find it more difficult to secure resources compared to for-profit ones. As the former do not pursue feed-in-tariff contracts, they struggle to obtain loans from financial institutions.

National revenues from CO₂ allowances auctioning finance, inter alia, the just transition of Greece's lignite regions and the energy communities therein. This funding was introduced in 2018; however, the allocated percentage has changed every year thereafter. As this is an important national resource for the just transition of lignite regions, it is recommended that, for the period 2022-2030, the percentage reserved for lignite regions rise to at least 6% of revenues per year, in order to support the implementation of the Just Transition Territorial Plans. In particular, in order to

absorb the 2018 funds already available to finance energy communities, the Green Fund should immediately proceed with the issuance of a call for the amount of €3.5m. from the 2018 CO₂ auction revenues³⁹. A similar call should be issued for the 2019, 2020 and 2021 proceeds, for significantly larger amounts, as €3.5m cannot sufficiently fund more than four (4) – five (5) 1MW projects. In addition, the resources from CO₂ auction revenues to be reserved for energy communities for the period 2022-2030 should be defined. Energy communities' projects should also be included in the projects to be supported by the resources of the new programming period 2021-2027 via regional programs.

With regard to the amount of state funding, the latter should obviously be in line with State aid legislation. For this reason, it should be demonstrated that the support provided to energy community projects in lignite regions serves public interest. The fight against energy poverty, the reduction of costs for the provision of existing services by the local government to residents, as well as the reduction of costs for services that local authorities do not currently provide to residents but could potentially do so if energy costs were lower (such as electrification for public transport) can justify the public interest in supporting energy community projects. In addition, it is proposed that funding be calculated on the basis of return of investment. Enhanced incentives could be applied, similar to those provided in the case of electromobility and Law 4710/2020, which are already included in the Territorial Just Transition Plans. In particular, rates can be applied that allow the energy community to

³⁹ GG B 2183/5.6.2020

reach return of investment within three years.

Especially with regard to lignite regions, the costs of installing renewable electricity and heating systems or implementing saving projects should be subsidized for public benefit energy communities that have as their main objective the coverage of their own needs. Enhanced incentives similar to those provided for electromobility can be applied, so that depreciation of fixed assets can be achieved within three years, taking into account of course the maximum level of aid for small enterprises specified in the new regional map (70% for both lignite regions).

On the broader policy supporting energy communities

The new National Energy and Climate Plan, which is currently being revised on the basis of the new European energy and climate targets for 2030, should set specific quantitative targets for the development of energy communities, along the lines of the Netherlands and Scotland. These quantitative targets could even be specific for the country's lignite regions, as for instance, by stipulating the percentage of local community participation in renewable energy projects, the percentage of self-production, etc.

Furthermore, the -already overdue- integration of the Directives on the promotion of the use of energy from renewable sources (Directive 2018/2001, REDII) and on common rules for the internal electricity market (Directive 2019/944, IEMD) should proceed, in order to end the uncertainty over the possible forms of energy communities and to allow them to further develop in a stable institutional environment. Here, it should be added that new

amendments to the Renewable Energy Directive are expected in the context of the European Green Deal and the "Fit for 55" package; therefore, any modification of the institutional framework should also take into account the upcoming changes.

Upgrading the grid and reserving sufficient 'electricity room' for energy community connections is key to the implementation of energy community projects. At least, in the case of energy communities of local government and citizens whose main objective is to meet their own needs via net metering (virtual or not), sufficient 'electricity room' should be reserved, along with a correspondingly sufficient area for the installation of photovoltaic plants in lignite regions. This minimum area could include lands to be transferred to the Special Purpose Vehicle (SPV) as described in the TJTPs.

Citizen participation in the energy transition can be further boosted by setting up specific incentives to foster cooperation between large renewable energy companies and energy communities, along the lines of similar partnerships established abroad (Denmark, Germany, etc.). This is also the direction endorsed by PPC President's public commitment to convert 5% of the large photovoltaic plants built in the lignite regions into shares to be sold exclusively to the citizens of these regions. In the case of such partnerships, the related revenues can further support energy community purposes, such as financing energy upgrade projects for residential homes, namely effecting a privately financed "Save - Autonomous" program.

Finally, launching an information hub for energy communities is vital. The creation of

such a hub by the Ministry of Environment and Energy will significantly strengthen the institution by recognizing its importance, both symbolically and substantially. Such a hub, which will be regularly updated and include certain automated, digital applications, can serve numerous purposes: provide direct information on all institutional developments; contribute to the immediate resolution of problems that arise; collect data on energy communities (statistical and qualitative characteristics) in order for the institution to evolve on the basis of documentation; elaborate and recommend support schemes and business models for energy communities, etc.

November 2021

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