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Energy Cooperatives and Community Energy Projects: European Governance Frameworks

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ABSTRACT

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The article examines the development of energy cooperatives and community-driven energy initiatives within Ukraine's public governance system, focusing on the regulatory and managerial instruments that enable citizen and municipal participation in energy generation and consumption. The study is motivated by the combined impact of wartime risks to energy infrastructure and the ongoing decentralization and EU-integration agenda, which increases the demand for resilient, distributed energy models. The key challenges include fragmented legal and procedural provisions for cooperative projects, complex grid connection and metering requirements, licensing and tariff rules that are disproportionate for small actors, and the lack of stable financial incentives and municipal support programmes. The purpose of the article is to substantiate governance mechanisms capable of scaling energy cooperatives in Ukraine and to identify priority areas for improving national policy and local self-government practices. The research employs comparative analysis, document analysis of legal and policy acts, synthesis of practices, SWOT analysis, and a statistical review of trends in small-scale distributed generation. A comparison of approaches in Germany, Denmark, Italy, and the Netherlands makes it possible to identify effective instruments for community engagement in renewables and benefit-sharing models that are relevant for adaptation in Ukraine. The results indicate that Ukraine has socio-economic preconditions for cooperative development (including growth in prosumer households), yet institutional barriers lead to isolated cases and constrain scaling. The paper proposes a multi-level governance framework that integrates regulatory measures (standardized connection procedures and proportional requirements for small participants), financial tools (targeted programmes, co-financing, and guarantee instruments), and digital solutions (transparent one-stop services and open data for monitoring). The conclusions argue that accelerating cooperative development requires coordinated action by the Cabinet of Ministers, the Ministry of Energy, the national regulator, and local self-government bodies, together with the institutionalization of participation mechanisms for communities in distributed generation projects. Future research should focus on a set of performance indicators for cooperative support policies and on assessing how the digitalization of energy services affects citizen engagement and the resilience of local energy systems.



KEYWORDS

public administration, energy cooperative, energy decentralization, renewable energy sources, energy community, digital energy services, decentralized energy, European integration, Ukraine's energy security.



Енергетичні кооперативи та проекти громадської енергетики: Європейські управлінські підходи

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СТАТТЯ

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У статті досліджено розвиток енергетичних кооперативів і громадських енергетичних ініціатив у системі публічного управління України з акцентом на інструменти державного та місцевого регулювання, які забезпечують участь громадян і громад у виробництві та споживанні енергії. Актуальність зумовлена поєднанням воєнних ризиків для енергетичної інфраструктури та завдань децентралізації й євроінтеграції, що підвищує потребу в розподілених, стійких моделях енергозабезпечення. Ключовими проблемами визначено фрагментарність нормативно-процедурного забезпечення кооперативних проєктів, складність приєднання до мереж і обліку, невідповідність ліцензійних та тарифних вимог масштабам малих учасників, а також відсутність сталої системи фінансових стимулів і програм підтримки на рівні громад. Метою статті є обґрунтування управлінських механізмів, здатних забезпечити масштабування енергетичних кооперативів в Україні, та визначення пріоритетних напрямів удосконалення державної політики і практик органів місцевого самоврядування. У дослідженні застосовано порівняльний аналіз, аналіз нормативно-правових актів і програмних документів, узагальнення практик, SWOT-аналіз, а також елементи статистичного огляду динаміки малої розподіленої генерації. Порівняння підходів Німеччини, Данії, Італії та Нідерландів дало змогу ідентифікувати дієві інструменти залучення громад до ВДЕ та моделі розподілу вигод, релевантні для адаптації в Україні. Результати показали наявність соціально-економічних передумов для кооперативного руху (зокрема зростання кількості домогосподарств-просьюмерів), однак інституційні бар'єри зумовлюють поодинокість кооперативних кейсів і стримують масштабування. У статті запропоновано рамку багаторівневого публічного управління розвитком енергетичних кооперативів, що поєднує регуляторні (стандартизація процедур приєднання, спрощення вимог для малих учасників), фінансові (цільові програми, співфінансування, гарантійні інструменти) та цифрові рішення (прозорі сервіси «єдиного вікна», відкриті дані для моніторингу). У висновках обґрунтовано, що прискорення розвитку кооперативів потребує узгоджених рішень КМУ, Міненерго, НКРЕКП і органів місцевого самоврядування, а також інституціоналізації механізмів участі громад у проєктах розподіленої генерації. Подальші дослідження доцільно спрямувати на розроблення системи індикаторів ефективності підтримки кооперативів і оцінювання впливу цифровізації енергетичних сервісів на залучення громадян та стійкість місцевих енергосистем.

КЛЮЧОВІ СЛОВА

публічне управління, енергетичний кооператив, децентралізація енергетики, відновлювані джерела енергії, енергетична спільнота, цифрові сервіси енергетики, децентралізована енергетика європейська інтеграція, енергетична безпека України.



1. Introduction

The centralized model of Ukraine's energy system, which has been formed for decades, has demonstrated a critical vulnerability in the face of a full-scale war. Systematic strikes on generation facilities led to a reduction in available capacity from 56 GW to 15 GW, with winter peak demand of about 19 GW. This necessitates a rethinking of approaches to the organization of energy supply with an emphasis on decentralization and the development of distributed generation.

European experience shows that energy cooperatives and public initiatives are an effective tool for involving citizens in the energy sector: in Germany, there are more than a thousand such cooperatives with 220 thousand members, and in Denmark, citizens own about half of the wind generation. The EU's fourth energy package, "Clean Energy for All Europeans," recognizes citizens as full participants in the energy market, which is not only a benchmark but also an obligation for Ukraine as a member of the Energy Community. Despite the presence of legislative prerequisites, as of 2025, there is actually only one energy cooperative in the country, which indicates systemic barriers of an institutional, financial and informational nature and necessitates the study of mechanisms of public management of the development of energy cooperatives.

2. Literature Review

The topic of energy cooperatives and public energy initiatives in Ukraine is considered at the intersection of public administration, cooperative law and RES development policy. The normative basis of cooperation is set by the Law of Ukraine "On Cooperation" [17], and the formalization of the concept of "energy cooperative" and the practical conditions of its functioning are associated with changes in the legislation in the field of alternative energy [18], which explains the relatively short history of system research. In the domestic literature, the emphasis is on the prerequisites and barriers to the development of distributed generation and cooperative models: the management effects of decentralization and the potential of RES are analyzed by I. Doronina and N. Kryshtof [4], energy cooperatives as a tool for sustainable development of communities – by V. Vostriakova [20], legal aspects of creation and operation – by M. Kuzmina [10]; in the works of O. Rush and S. Voitko [12], the international dimension and context of European integration are revealed, and in the study of G. Trypolska et al. [14] institutional and financial limitations of state policy are generalized. Foreign approaches to "community energy" are conceptualized in the works of G. Walker and P. Devine-Wright [21], and the factors of development of cooperatives in Europe are conceptualized in the study of T. Bauwens et al. [1]; the empirical basis for comparisons is supplemented by specialized reports (in particular DGRV) [3]. At the same time, the framework of the status of energy communities and citizens' participation in the electricity market is determined by EU directives [6; 7].

3. Problem Statement

The article is aimed at determining the role of energy cooperatives and public initiatives in the system of public management of the energy sector in the context of decentralization. The experience of Germany, Denmark and Italy in the formation of energy communities is analyzed. The main barriers to the development of energy cooperatives in Ukraine and the role of public authorities in promoting their creation have been clarified. The legislative basis for the functioning of energy cooperatives in accordance with the requirements of EU Directives 2018/2001 [6] and 2019/944 [7] is analyzed. The instruments of state support are systematized and directions for improving public administration to stimulate civil energy in Ukraine are proposed.

4. Methods and Materials

The materials of the study are the regulations of Ukraine and the EU on energy cooperatives, in particular Directives 2018/2001 [6] and 2019/944 [7]; statistics from the European Federation of Energy Cooperatives and the German Cooperative Union; works of domestic and foreign scientists in the field of public energy management. The methods of comparative analysis (comparison of European models with Ukrainian experience), statistical (analysis of the dynamics of RES development),

theoretical generalization (systematization of barriers and support tools), analysis and synthesis and logical generalization of results are used.

5. Results and Discussion

The scientific article systematizes the European experience of the functioning of energy cooperatives as a tool for decentralization of the energy sector. The key models of organization of energy communities in Germany, Denmark and Italy are identified and the factors of their successful development are clarified. The legislative basis of the activities of energy cooperatives in Ukraine is analyzed and the main barriers to their dissemination are identified: legal uncertainty, lack of financial instruments, low awareness of the population and distrust of the cooperative model. The role of local self-government bodies in promoting the creation of public energy associations has been substantiated. The proposed directions for improving public administration mechanisms will contribute to the formation of a favorable institutional environment for the development of energy cooperatives and accelerate Ukraine's integration into the European energy space.

The development of energy cooperatives in Ukraine is closely related to the decentralization reform, which expanded the managerial and financial capabilities of territorial communities and created the basis for the launch of local energy initiatives within the framework of local development policy [4; 14]. The institutional basis of the cooperative model is the general norms of cooperative law defined by the Law of Ukraine "On Cooperation" [17], while the specialization of cooperation in the energy sector has received additional certainty after amendments to the legislation on the production of electricity from alternative sources [18].

Domestic studies emphasize that the potential of public energy is related to the development of distributed generation and the use of local resources, but the practical scaling of cooperative initiatives is constrained by institutional and procedural barriers, primarily in terms of the legal regime of activity, access to funding and organizational capacity at the local level [14; 20]. In this context, cooperatives are considered not only as a form of management, but as a tool for involving citizens and local businesses in the implementation of energy projects with socially significant effects, which corresponds to broader approaches to community energy in the European literature [1; 21].

Before the full-scale invasion, the renewable energy sector in Ukraine was characterized by high rates of capacity build-up with the dominance of solar generation. Relevant structural changes and dynamics in 2019–2024 (Table 1).

Table 1. Dynamics of installed capacity of renewable electricity facilities in Ukraine by type, MW (2019–2024)

Generation type	2019	2020	2021	2024	Change 2019–2021	Change 2021–2024
Industrial solar power plants	4. 837	6 076	6 381	~6 200	+32%	–3%
Domestic solar power plants	533	779	1 205	~1 500	+126%	+24%
Wind power plant	1 170	1 314	1 673	~1 000	+43%	–40%
Small hydroelectric power plant	96	103	121	~95	+26%	–21%
TOTAL	6 636	8 272	9 380	~8 795	+41%	–6%

Source: Compiled by the author based on [9; 15; 22].

The decentralization reform has created new opportunities and management tasks for municipalities to combine energy projects with local development. An energy cooperative can act as a platform for accumulating local investments, but the effectiveness of the model depends on clear procedures and support for local programs. Therefore, the implementation of cooperative initiatives requires institutional support – from consultations to organizing access to financing and interaction with network operators.

The analysis of the data in Table 1 shows two distinct periods of development of the renewable energy sector (RES): rapid growth in 2019–2021 (+41%) and the war recession in 2021–2024 (–6%). The most vulnerable was wind energy, which lost 40% of its capacity due to the occupation of territories. On the other hand, the segment of home solar power plants demonstrates steady growth (+24% during the war), forming a social base for cooperative models of energy supply. This confirms the thesis of

higher sustainability of distributed generation compared to centralized facilities and actualizes the development of energy cooperatives as a tool for improving the energy security of communities.

At the same time, hostilities have significantly affected the RES: if at the beginning of 2022 the total installed capacity was 9.9 GW (of which 6 GW is solar energy, 2 GW is wind), then at the beginning of 2024 it has decreased to 8.7 GW due to occupation, damage and destruction. According to estimates by the Solar Energy Association of Ukraine, 800–850 MW of new solar capacity was commissioned in 2024, mainly for the own consumption of businesses and households [11]. The share of RES in electricity generation increased from 11% in 2024 to 17.3% in mid-2025, which is partly explained by the destruction of traditional generation facilities [9].

Domestic studies emphasize that decentralization of energy supply can increase the resilience of communities, but the spread of cooperative models is constrained by procedural and institutional barriers [4, p.75]. The general principles of cooperation are determined by the Law of Ukraine “On Cooperation” [17], and the specifics of energy cooperation are additionally outlined by amendments to the legislation in the field of RES [18]. At the same time, scientific publications emphasize the need to clarify and simplify legal and organizational support mechanisms [10; 14]. The international literature considers “community energy” as a tool for mobilizing local investments and combining energy and social goals, subject to proper policy design and public acceptability of projects [1; 21], which for Ukraine actualizes the focus of public administration on reducing the transaction costs of launching and ensuring the reproducibility of such solutions in communities [14] (Table 2).

Table 2. Comparative characteristics of types of energy communities according to EU legislation

Criterion	Renewable energy communities (RECs)	Citizen energy communities (CECs)
Legal basis	Directive (EU) 2018/2001 (RED II)	Directive (EU) 2019/944
Sector/sources	Renewable energy	Electric power sector; generation, including from RES
Membership (access)	Open and voluntary (according to non-discriminatory criteria)	Open and voluntary
Effective control /decision-making	Control by participants located in the “proximity” to the project	Control by: individuals, local authorities
Main goal	Environmental/economic/social benefits for members or local territories	Environmental/economic/social benefits for members/shareholders
Permitted activities (generalized)	Activities around RES projects and related energy services	Generation, distribution, supply, consumption, aggregation, storage, energy-efficient services

Source: Compiled by the author based on [6; 7].

For Ukraine, as a contracting party to the Energy Community, the implementation of European approaches to energy communities is an element of commitment; in the national context, the model of renewable energy communities seems to be the most exemplary, which is consistent with the goals of RES development and decentralization at the level of territorial communities.

A good example of the scaling up of cooperative energy is Germany: the first energy cooperatives were formed at the end of the nineteenth century, and the modern wave of growth has intensified after the introduction of support for RES in the early 2000s. According to DGRV, in 2024, there were 1038 energy cooperatives in the country with more than 220 thousand hectares. members and about EUR 3.6 billion of investments; solar energy projects prevailed (more than three-quarters of cooperatives), which is explained by the lower entry threshold [3].

Denmark is an illustrative example of the development of wind energy on a cooperative basis. Cooperative ownership has been formed since the 1970s: by the end of the 1990s, there were more than 2100 wind cooperatives, uniting more than 100 thousand people. households [8]. In 2024, RES provided 88.4% of electricity production, of which about 60% was wind generation with a significant share of civilian ownership. A key tool is the 2008 norm, according to which developers of onshore wind projects are obliged to offer residents at least a 20% share in ownership. This reduces conflict and increases public support.

The managerial value of the Danish model lies in the fact that participatory mechanisms institutionalize the “distribution of benefits” at the local level: residents receive not only an environmental effect, but also a tangible economic interest in the project results. This changes the logic of interaction between the project initiator, the community and local authorities – from confrontation

to partnership, where cooperative/joint ownership acts as a tool for legitimizing infrastructure solutions and reducing the transaction costs of approvals.

An illustrative example is the offshore wind farm Middelgrunden (20 turbines, 40 MW), implemented in a 50/50 format between a municipal company and an investor cooperative [8]. The Danish case highlights that community effectiveness relies on long-term and consistent policies and building trust at the community level.

The experience of Germany and Denmark is the most well-known, but energy communities are also dynamically developing in other EU countries, where national models differ in pace, technological specialization and the role of local authorities. A synthesis of key indicators and practices makes it possible to identify common success factors – stability of rules, access to the network, tools for attracting small investors and mechanisms for increasing public acceptance – and compare their manifestation in different countries (Table 3).

An important factor in the success of the Danish model is a comprehensive system of state support, which includes not only financial incentives but also institutional infrastructure. Denmark was one of the first to introduce guaranteed tariffs for small producers, simplified grid connection procedures and standardized electricity purchase and sale agreements. At the local level, municipalities provide advisory support to initiative groups, promote access to land and act as mediators in negotiations between communities and developers. Such a multi-tiered support system reduces transaction costs for initiators and creates a predictable environment for long-term investments.

Table 3. Development of energy cooperatives and communities in EU countries (2024)

Country	Number of cooperatives	Number of members	Key features
Germany	1 038	220 000	Largest market, dominated by solar energy (77%), investments of 3.6 billion euros
Denmark	~500	>100 thousand families	Wind energy pioneer, 52% of wind capacity in civilian ownership, mandatory 20% share for local
Netherlands	714	130 000	Presence in 89% of municipalities, emphasis on local smart grids
Italy	876	n/a	The fastest growth (19 times per year), 88% is solar energy, 58% is initiated by the public sector
Poland	n/a	n/a	More than €200 million modernization fund for energy cooperatives

Source: Compiled by the author based on [3; 6; 8; 13; 16].

The data show that energy communities can develop under different starting conditions: Germany and Denmark rely on long-standing cooperative traditions, while in some countries, a noticeable acceleration occurred after the introduction of incentive rules. Despite the differences in national models, three critical factors are repeated: a clear legal framework, affordable financial instruments, and a proactive role of public authorities. Significantly, local governments often act not only as regulators but also as co-initiators or participants in projects, providing organizational support and legitimacy at the local level.

From the standpoint of public administration, this means that the performance of energy communities is determined not so much by the formal “availability of rights” as by the ability of institutions to reduce the transaction costs of launching: to provide standard procedures, predictable rules for interaction with grid operators, and accessible financing mechanisms that are understandable to small investors.

In Ukraine, the situation is significantly different. Even though the term “energy cooperative” has been enshrined at the legislative level since 2019 [18], practical implementation remains isolated: the most famous example is the cooperative “Sunny City” in Slavutych.

The energy cooperative “Sunny City” was founded in August 2018 on the joint initiative of the Slavutych City Council and the public organization “Greencubator”. This is the first municipal energy cooperative in Ukraine to implement the “equity crowdfunding” model for the construction of solar power plants.

The municipal status of the cooperative is ensured by the participation of the municipal enterprise “Regional Development Agency” of the Slavutych City Council as one of the founders, which increases the transparency of management and the trust of the community [2].

The technical infrastructure of the cooperative includes three rooftop solar power plants with a total capacity of 200 kW, located on municipal buildings in the center of Slavutych. The total cost of the project was about UAH 4 million, raised exclusively through the share contributions of cooperative members. The cost of one unit is UAH 15,000 (about 500 euros), which provides a low entry threshold for small investors. As of 2021, the cooperative united 97 members, of which about a fifth were residents of Slavutych; the rest are investors from other regions of Ukraine [5].

The financial model of the cooperative provides for the sale of electricity produced at a “green tariff” with a projected yield of about 13.8% per annum for cooperative members. An important element is social responsibility: 5% of net profit is directed to the implementation of urban projects within the framework of the Action Plan for Sustainable Energy Development of Slavutych. According to design calculations, power plants should supply about 148 MWh of electricity per year to the grid.

The management model of the “Sunny City” is based on the principle of “one member – one vote” regardless of the number of shares, which distinguishes the cooperative from corporate forms of management. Profits are distributed in proportion to the size of the investment. The cooperative uses electronic document management and remote voting, which minimizes bureaucratic procedures and ensures the participation of members from different regions. For the implementation of this practice, the Slavutych City Council in 2020 received a diploma of the first degree in the competition “Best Practices of Local Self-Government” [2; 5].

The experience of the “Sunny City” demonstrates the key factors for the success of the cooperative model in Ukrainian conditions: partnership with local governments, the use of municipal infrastructure (roofs of communal buildings on preferential lease terms), a low entry threshold for investors and a transparent management system. Therefore, the implementation of the project revealed typical barriers – difficulties in interacting with government agencies, in particular when obtaining a license from the National Energy and Utilities Regulatory Commission for electricity production and grid connection.

Such a disproportion between normative opportunity and actual practice indicates the presence of systemic barriers – legal and procedural, institutional, financial, as well as social (in particular, related to trust in cooperative forms). Therefore, it is advisable to identify and structure these barriers with the subsequent definition of managerial tools for overcoming them (Table 4).

Table 4. The main barriers to the development of energy cooperatives in Ukraine

Barrier type	Characteristics	Events
Institutional	Overregulation and complex permitting procedures	The need to obtain three licenses and approve three tariffs (production, transportation, supply); Requirements for natural monopolies
Financial	Limited access to capital and lack of targeted programs	Lack of start-up funding; lack of soft loans and grants for energy cooperatives; High initial investment
Social and psychological	Distrust of the cooperative model	Negative experience of Soviet times; low awareness of the population about the benefits and mechanisms of functioning; Lack of successful examples
Informational	Lack of knowledge and competencies	Lack of awareness of world experience; lack of technical and economic knowledge of potential initiators

Source: Systematized by the author based on [18; 21].

According to the 2024 survey, only 7% of respondents have sufficient knowledge about energy cooperatives to inform others; 93% have either never heard of them or have a superficial idea

The analysis of obstacles shows that the development of energy cooperatives in Ukraine is constrained by a set of interrelated barriers (Table 4): unclear procedures for establishing cooperatives, excessive regulatory requirements for small initiatives, lack of available funding, low trust in joint ownership, and lack of necessary competencies of potential initiators. Together, these barriers significantly increase the cost of launching projects and make it difficult to disseminate successful experiences between communities.

The problem has a clearly expressed managerial character. Even with the legal right to create a cooperative, the initiators face numerous approvals that require legal, technical and financial knowledge, as well as significant time investments.

An important step towards simplifying the regulatory environment was the adoption of the Law of Ukraine No. 4213-IX of January 14, 2025, “On Amendments to Certain Laws of Ukraine in the Fields

of Energy and Heat Supply” [19]. The Law introduces several mechanisms that will contribute to the development of distributed generation and, indirectly, energy cooperatives:

Firstly, a “cable pooling” mechanism has been introduced, which allows you to connect several generation sources to one grid connection point. This reduces infrastructure costs and simplifies the implementation of combined projects (for example, a combination of solar and wind generation).

Secondly, the restriction according to which the installed capacity of electrical installations could not exceed the permitted (contractual) capacity has been abolished. Now, only the actual output of power to the grid is limited, which increases the efficiency of using the connected capacity.

Thirdly, an advance payment for connection to the main networks in the amount of 10 euros per 1 kW has been introduced, which should prevent speculative reservation of capacities and create more transparent conditions for real investors.

These changes create a more favorable regulatory environment for small electricity producers; however, for the full development of energy cooperatives, it is necessary to adopt special by-laws that regulate the peculiarities of their creation and operation in accordance with the requirements of EU Directives 2018/2001 [6] and 2019/944 [7].

To generalize the prerequisites and limitations of the development of cooperative models and determine the priorities of public administration, SWOT analysis was used (Table 5).

Table 5. SWOT analysis of the development of energy cooperatives in Ukraine

Strengths (S)	Weaknesses (W)
Decentralization and the availability of local development tools High relevance of energy autonomy of communities Growth of the segment of prosumer households as a social base Compatibility with the European integration vector and RES policy	Legal/procedural uncertainty for models with shared infrastructure Complexity of network connection, accounting, and contractual procedures Low institutional capacity/HR expertise Shortage of targeted financial instruments for cooperative models
Opportunities (O)	Threats (T)
Post-war reconstruction: reorientation to distributed solutions Implementation of EU approaches to energy communities Pilot projects in communities as a mechanism for “demonstrating trust” Development of accumulation/flexibility for critical infrastructure	Security risks, physical destruction and uncertainty of recovery timelines Regulatory volatility and tariff/market risks Network infrastructure limitations and connection failure/delay risks Currency/inflation risks and high cost of capital

Source: Compiled by the author based on [1; 4; 12; 14; 17–22].

The SWOT analysis confirms that the key points of impact are simplification of procedures, reduction of financial risks, and institutional support for pilot projects.

The most acute obstacle remains legal uncertainty at the intersection of generation, supply and local infrastructure. For microgrids, the lack of a standard “roadmap” for creation and operation is critical. Regulatory and technical complexity – excessive requirements for connection, accounting and licensing – further constrains small initiatives. The financial barrier is exacerbated by the limited experience of banks and low trust in joint ownership, which forms a “vicious circle” of a shortage of participants and successful cases.

War risks have actualized decentralized solutions as a tool for community resilience. The adoption of Law 4213-IX in January 2025 [19] is a positive signal, as well as by-laws, targeted financial instruments, consulting support, and the launch of pilot projects in communities.

6. Conclusions

Energy cooperatives are an effective tool for decentralizing the energy sector and involving citizens in the energy transition. European experience convincingly testifies to their effectiveness: in Germany, there are more than a thousand energy cooperatives with 220 thousand members and investments of 3.6 billion euros, in Denmark, citizens own a significant share of wind generation thanks to the mechanism of mandatory 20% participation of residents in new projects. The success of the

European model is based on a combination of clear legal regulation, affordable financial instruments and a proactive role of public authorities at all levels.

In Ukraine, the development of energy cooperatives is constrained by a complex of interrelated barriers. Despite the legislative consolidation of the term “energy cooperative” in 2019, for six years there has actually been only one such cooperative in the country – “Sunny City” in Slavutych. The experience of this municipal energy cooperative, which united 97 members and implemented a 200 kW solar power plant project based on cooperative community cost, demonstrates the viability of the model in partnership with local governments. At the same time, legal uncertainty at the intersection of generation and supply, excessive regulatory requirements, lack of targeted funding, and low public confidence in the cooperative model form systemic obstacles that make it impossible to scale without active state intervention.

To stimulate the development of energy cooperatives in Ukraine, a comprehensive system of public administration measures is needed. The priority is to complete the implementation of EU Directives 2018/2001 [6] and 2019/944 [7] on energy communities by developing clear by-laws and standardized procedures for the establishment of cooperatives. An important step will be the introduction of a simplified licensing regime for small-capacity cooperatives and the creation of targeted financial instruments – grants, soft loans, and co-financing programs at the national and regional levels. A key role should be played by the activation of local self-government bodies as initiators and partners of energy communities, as well as the formation of information and consulting infrastructure through specialized competence centers.

The adoption of Law No. 4213-IX in January 2025 [19], which introduced the cable pooling mechanism and simplified the procedures for connecting to the networks, is a positive signal, but needs to be supplemented by special by-laws on energy communities.

In wartime, when the reduction of generating capacity from 56 to 15 GW and the financial gap between losses and recovery needs (USD 20.5 versus USD 67.8 billion) actualize the search for alternative reconstruction mechanisms, the development of energy cooperatives is of strategic importance. Decentralized generation increases the resilience of the energy system to external shocks, reduces dependence on centralized supply, and creates preconditions for the restoration of energy infrastructure “from below” – through the mobilization of local investments and partnership of communities with authorities. The implementation of the proposed measures will contribute to the formation of a civil energy model in Ukraine that meets European standards, Ukraine’s obligations as a member of the Energy Community and the needs of territorial communities to increase energy autonomy.

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