

UDC 620.9(477):342.9

DOI <https://doi.org/10.24144/2307-3322.2025.91.3.6>

## **RENEWABLE ENERGY AS A COMPONENT OF UKRAINE'S ENERGY SECURITY: ADMINISTRATIVE AND LEGAL REGULATION**

**Gurzhii T.O.,**

*Doctor of Juridical Sciences, Professor,  
Head of the Department of Administrative,  
Financial and Information Law  
State University of Trade and Economics  
ORCID: 0000-0002-3348-8298  
e-mail: t.gurzhii@knute.edu.ua*

**Gurzhii T.O. Renewable energy as a component of Ukraine's energy security: administrative and legal regulation.**

The article analyzes the role of renewable energy in ensuring Ukraine's energy security in the aspect of administrative and legal regulation. The relevance of the study is due to the need to improve administrative and legal mechanisms in national legislation to take into account the principles of sustainable development, the challenges caused by martial law, as well as Ukraine's international obligations in the field of climate and energy policy. In the context of the destruction of traditional energy infrastructure due to the military aggression of the Russian Federation, the development of a decentralized energy system with a high share of renewable energy sources acquires particular significance as a component of national security.

The study analyzed the main legislative acts governing the development of renewable energy in Ukraine, including the Law of Ukraine «On Alternative Energy Sources», the Law of Ukraine «On the Electricity Market», as well as the provisions of the Energy Strategy of Ukraine until 2050, titled «Security, Energy Efficiency, Competitiveness». Special attention is given to the implementation of European Union law, particularly Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources (RED II) and Regulation (EU) 2021/1119 «European Climate Law», which establish the framework for integrating renewable energy into national strategies.

The research demonstrates that the development of renewable energy directly contributes to enhancing the country's energy security by reducing dependence on imported energy, creating new technological markets, promoting local generation, and developing energy clusters. The study emphasized that the legal framework in this sector is gradually transforming from a state-stimulated «green tariff» model to a competitive market model with auction-based support mechanisms, aligning with European standards of transparency and sustainable development.

Particular attention is paid to the analysis of state policy regarding post-war restoring of energy infrastructure and initiatives under the Ukraine Recovery Plan (2023), where the development of renewable energy is identified as a key priority. It is established that in current conditions, renewable energy serves not only as a component of energy security but also as a factor of socio-economic stability, facilitating the decentralization of energy supply, creation new jobs, and reducing environmental risks.

Based on the analysis of legal sources, strategic documents, and contemporary scientific literature, the study concludes that effective legal support for the development of renewable energy requires a comprehensive approach, combining the harmonization of national legislation with the acquit communautaire, improvement of grid connection procedures, creation of effective investment attraction mechanism, and provision of legal guarantees for small producers and energy cooperatives. Further research should focus on enhancing regulatory and legal instruments for energy security management and developing the concept of «energy democracy» as a new approach to Ukraine's energy policy.

**Key words:** renewable energy, administrative and legal regulation, administrative law, energy security, sustainable development, energy policy, EU directives, Feed-in tariff, energy transition.

**Гуржій Т.О. Відновлювана енергетика як складова енергетичної безпеки України: адміністративно-правове регулювання.**

У статті проаналізовано роль відновлювальної енергетики у забезпеченні енергетичної безпеки України в аспекті адміністративно-правового регулювання. Актуальність дослідження обумовлена необхідністю вдосконалення адміністративно-правових механізмів у національному законодавстві для врахування принципів сталого розвитку, викликів, спричинених воєнним станом, а також міжнародних зобов'язань України у сфері кліматичної та енергетичної політики. В умовах руйнування традиційної енергетичної інфраструктури внаслідок військової агресії Російської Федерації, питання розбудови децентралізованої енергосистеми з високою часткою відновлювальних джерел енергії набуває особливого значення як елемент національної безпеки.

У роботі проаналізовано основні законодавчі акти, що регулюють розвиток відновлювальної енергетики в Україні, серед яких Закон України «Про альтернативні джерела енергії», Закон України «Про ринок електричної енергії», а також положення Енергетичної стратегії України до 2050 року «Безпека, енергоефективність, конкурентоспроможність». Особливу увагу приділено імплементації норм права Європейського Союзу, зокрема Директиви (ЄС) 2018/2001 про сприяння використанню енергії з відновлювальних джерел (RED II) та Регламенту (ЄС) 2021/1119 «Європейський кліматичний закон», які встановлюють рамкові орієнтири для інтеграції відновлювальної енергетики у національну стратегію.

Дослідження демонструє, що розвиток відновлювальної енергетики безпосередньо впливає на підвищення рівня енергетичної безпеки держави шляхом зменшення залежності від імпорту енергоносіїв, створення нових технологічних ринків, розвитку локальної генерації та розбудову енергетичних кластерів. У роботі підкреслено, що нормативно-правова база у цій сфері поступово трансформується від моделі державного стимулювання через «зелений» тариф до моделі конкурентного ринку з аукціонними механізмами підтримки, що відповідає європейським стандартам прозорості та сталого розвитку.

Особливу увагу приділено аналізу державної політики щодо післявоєнного відновлення енергетичної інфраструктури та ініціативам у межах Плану відновлення України (2023) де розвиток відновлювальної енергетики визначено одним із ключових пріоритетів. Встановлено, що у сучасних умовах відновлювальна енергетика є не лише складовою енергетичної безпеки, але й чинником соціально-економічної стабільності, сприяючи децентралізації енергопостачання, створенню робочих місць та зменшенню екологічних ризиків.

На основі аналізу правових джерел, стратегічних документів та актуальної наукової літератури зроблено висновок, що ефективне правове забезпечення розвитку відновлювальної енергетики потребує комплексного підходу, який поєднує гармонізацію національного законодавства з *acquis communautaire*, удосконалення процедур приєднання до мереж, створення ефективних механізмів залучення інвестицій та забезпечення правових гарантій для малих виробників і енергетичних кооперативів. Подальші дослідження мають бути спрямовані на вдосконалення нормативно-правових механізмів управління енергетичною безпекою та розвиток концепції «енергетичної демократії» як нового підходу до енергетичної політики України.

**Ключові слова:** відновлювальна енергетика, адміністративно-правове регулювання, адміністративне право, енергетична безпека, сталий розвиток, енергетична політика, директиви ЄС, зелений тариф, енергетичний перехід.

**Problem statement.** The issue of ensuring Ukraine's energy security in the context of global challenges and Russia's armed aggression has become particularly relevant, as the energy sector is not only a fundamental component of the economy but also a strategic element of national security. The destruction of energy infrastructure, the destruction or occupation of power generation facilities, and disruptions to energy supply chains all pose a threat to the stability of energy supplies and require a review of the existing model of energy security in the country. In this context, the importance of renewable energy as a tool for strengthening energy independence, increasing the resilience of the energy system and achieving sustainable development goals is growing.

The main problem lies in the insufficient integration of renewable energy sources into Ukraine's energy balance and the inconsistency of the legal mechanisms regulating this area. Despite the adoption of the Laws of Ukraine «On Alternative Energy Sources» and «On the Electricity Market», law enforcement practice indicates gaps in the regulation of grid connection procedures, generation balancing and the

distribution of responsibilities among market participants. There is also an insufficient level of legal guarantees for investors and small producers, which limits the development of energy cooperatives and decentralised forms of generation.

In addition, the transition from a system of state incentives through green tariffs to a competitive auction-based support model requires improvements to the legal mechanism for its implementation. Insufficient transparency of regulatory procedures, the lack of a unified state strategy for integrating renewable energy into the post-war energy space, and delays in the implementation of European Union law all hinder the formation of a stable legal environment.

In the context of the country's recovery after armed conflicts, the issue of renewable energy development is becoming important not only economically but also in terms of security. Legal support should be a key factor in shaping a modern energy policy aimed at decentralisation, reducing energy dependence and greening the economy. Thus, a scientific and practical problem arises – to determine the place of renewable energy in Ukraine's energy security system and to develop a set of legal mechanisms that will ensure its effective development in accordance with European standards and principles of sustainable development.

**The purpose of the article** is to conduct a comprehensive study of the legal basis for the development of renewable energy in Ukraine in the context of ensuring the country's energy security. The work aims to determine the place and role of renewable energy sources in strengthening the national energy system, to assess the level of compliance of Ukrainian legislation with European standards, and to identify the main legal problems that hinder the effective integration of renewable energy into the energy security structure.

**State of research on the issue.** The issue of the role of renewable energy in the context of Ukraine's energy security is quite dynamic, as it combines legal, economic and environmental dimensions. The scientific works of V. Khomina, T. Korolyuk, and Y. Zverevich emphasise the need for a systematic transformation of energy legislation to bring it into line with European Union standards, in particular Directive (EU) 2018/2001 (RED II) and Regulation (EU) 2021/1119 «European Climate Law». Researchers emphasise that energy security is now seen not only as a technical or economic category, but as a comprehensive legal system aimed at ensuring the sustainable functioning of the energy market, diversifying supply sources and protecting the strategic interests of the state. The works of Ukrainian scientists emphasise the need for legal support for the «green» transformation, including through the implementation of regulations to support renewable energy sources and the development of new energy market mechanisms, such as feed-in premiums (FiP) and guarantees of origin for electricity.

At the same time, current academic debate actively addresses the role of renewable energy in Ukraine's post-war recovery and strengthening of its energy independence. Reports by international organisations such as the International Energy Agency (IEA) and the United Nations Economic Commission for Europe (UNECE) emphasise the need to create a sustainable, decentralised energy system that combines legal guarantees of investment stability with environmental responsibility. Analytical materials from the Razumkov Centre (A. Konechenkov) emphasise the need to reform the legislative framework to overcome the consequences of war damage and develop local initiatives in the field of renewable energy sources. Thus, the issue of renewable energy's place in Ukraine's energy security is being developed mainly in the direction of improving legal regulation, adapting to European standards, and ensuring the stability of the energy system in crisis conditions.

**Presentation of the main material.** Energy security is considered a multi-level phenomenon that includes national, regional and local levels and implies the state's ability to ensure a sustainable and reliable energy supply system. As noted by V. S. Khomina, the key aspects of this process are creating conditions for reliably meeting the demand for energy resources, improving energy efficiency and reducing the technogenic load on the environment. An example of the practical implementation of these principles was the synchronisation of Ukraine's energy system with the ENTSO-E network after the start of full-scale aggression by the Russian Federation, which made it possible to ensure uninterrupted energy supply and reduce dependence on energy imports [1, pp. 36-37].

Renewable energy plays an important role in ensuring Ukraine's energy security, which is enshrined in legislation through the adoption of the Law of Ukraine «On Amendments to Certain Laws of Ukraine Regarding the Restoration and «Green» Transformation of Ukraine's Energy System» (2023) [2]. The law establishes legal mechanisms to support renewable energy sources, in particular guarantees of origin of electricity, which confirm its production from renewable sources and create

opportunities for trade on both the national and international markets. The introduction of a feed-in premium (FiP) mechanism through a green auction system provides economic incentives for investment in renewable energy sources and systems, while the 12-year support period guarantees stability and predictability for producers. The law also provides for measures to restore damaged renewable energy generation and systems while maintaining tariffs and introducing a new market participant – an aggregator that allows small producers and consumers to be combined, creating virtual power plants. The conditions for connecting wind projects to the grid are regulated separately, including restrictions in occupied territories, which provides legal certainty and planning for the development of the sector. Thus, the legal instruments of the Law contribute to the integration of renewable energy into the energy security system, reducing dependence on energy imports and increasing the sustainability of energy supply.

Renewable energy plays a strategic role in ensuring Ukraine's energy security, combining environmental, economic and legal mechanisms for sustainable development. The regulatory framework for state policy in this area is enshrined in strategic documents such as Ukraine's Energy Strategy until 2050, Low Carbon Development Strategy and National Renewable Energy Action Plan until 2030, defines long-term directions for the transition to «green» energy and the fulfilment of the state's international obligations [3, pp. 88-90]. The article emphasises that the development of renewable energy sources not only contributes to reducing greenhouse gas emissions, but also increases the resilience of the energy system during military operations through the introduction of decentralised networks and microgeneration [3, pp. 92-93]. At the same time, the authors stress the need to improve legislation, in particular the provisions of the Laws of Ukraine «On Alternative Energy Sources», «On the Electricity Market», and «On Energy Efficiency», which contain gaps that hinder the effective attraction of investment in the industry [3, pp. 90-91].

According to the analysis of the International Energy Agency (IEA) in the report *Ukraine's Energy Security and the Coming Winter*, renewable energy in Ukraine has become an important factor in increasing the stability of the energy system in the context of military aggression. The IEA notes that between 2022 and mid-2024, approximately half of the country's generation capacity was either captured, damaged or destroyed, and a significant proportion of electricity transmission facilities were also destroyed. In this regard, it is recommended to accelerate the deployment of decentralised energy sources – rooftop solar panels, small wind turbines, batteries, and small modular gas turbines – which can partially compensate for the loss of centralised generation and reduce the risk of outages during subsequent winter seasons [4].

From a legal point of view, such challenges require appropriate legal support, in particular through laws and regulatory mechanisms that allow:

- rapid commissioning of renewable energy facilities with simplified technical and administrative procedures;
- legislative support for decentralised generation as part of national security;
- consistently ensure access to energy storage and balancing mechanisms in the electricity market;
- integrate guarantees of origin to confirm the 'greenness' of the energy produced, as well as ensure the possibility of trading these guarantees both domestically and internationally.

A key element of Ukraine's recovery strategy, outlined in the UNECE report (2023), is the transition to an electricity market with a high share of renewable energy, carbon neutrality and resilience to external challenges. UNECE emphasises that it is important for Ukraine to develop a legal framework that will ensure the rapid growth of renewable energy sources, while taking into account environmental safety standards, cyber security, risk insurance, technical resilience and adaptation to climate change. Key recommendations include establishing clear rules to encourage investors in renewable energy sources, guarantees of electricity origin, mechanisms for integrating energy storage and decentralisation. UNECE emphasises that legal uncertainty regarding grid connection conditions, licensing procedures, operating and safety standards creates significant investment risks that may hinder the realisation of the potential of renewable energy sources as a component of energy security [5].

UNECE (2023) also stresses that the restoration of Ukraine's energy system should be based on a modern regulatory framework that integrates the principles of the European Green Deal and the provisions of the European Climate Law (Regulation (EU) 2021/1119). In particular, it is proposed to amend the legislation to introduce a unified energy planning system covering renewable energy sources, energy storage facilities and distributed generation, as well as to update the Law of Ukraine



«On Alternative Energy Sources» with additions on guarantees of origin, energy system balancing, and the digitisation of RES facility management.

The article *Green Energy in Ukraine: State, Public Demands, and Trends* emphasises that the development of renewable energy sources is not only an environmental but also a legal tool for ensuring energy security. The integration of European energy law into national legislation has contributed to the formation of a legal framework for the stable functioning of the renewable energy market and the investment attractiveness of the sector. Particular attention is paid to community participation in energy production through energy cooperatives and local initiatives, which increases the resilience of the energy system [6].

Scientific research by MDPI (2020) shows that the use of hybrid renewable energy systems, which combine solar, wind and storage components, can provide a more stable and predictable energy supply in regions with low centralised grid capacity. Such systems contribute to Ukraine's energy security, as they are capable of compensating for periodic fluctuations in generation from individual renewable energy sources and ensuring the autonomous operation of microgrids [7].

According to A. Konechenkov's analysis, Ukraine's renewable energy sector underwent significant changes before, during and after the war [8]. Before the conflict, the country demonstrated steady development of renewable energy, during the war the infrastructure suffered serious damage, and after the restoration, the energy system was modernised, new technologies were integrated, and international support was attracted. These steps contribute to strengthening energy security and reducing dependence on traditional energy sources.

The National Renewable Energy Action Plan for the period up to 2030 (Cabinet of Ministers of Ukraine № 761-r, 2024) aims to increase the share of renewable energy sources in energy consumption to 27.1% and develop key areas – solar, wind and bioenergy generation. The plan provides for the simplification of licensing procedures, pilot online auctions and financial incentives to attract investment in renewable energy sources. These measures create the conditions for stable development of the sector, increase the country's energy security, reduce dependence on energy imports and promote Ukraine's integration into the European energy space [9].

The National Energy and Climate Plan of Ukraine (NECP), has become an important legal instrument that sets out commitments to the development of renewable energy as a key element of energy security. According to the Energy Community's assessment, the document sets a target of achieving a 27% share of renewable energy sources in total final energy consumption by 2030, which significantly exceeds the current level and requires new legislative support. The plan provides for the implementation of EU standards, as well as the development and adoption of laws regulating guarantees of origin, climate neutrality declarations, greenhouse gas reporting, energy system balancing and the participation of RES projects in the support system (auctions, FiP). The assessments and recommendations pay particular attention to legal instruments that could increase the investment attractiveness of the renewable energy sector: stability of regulatory conditions, transparency of licensing procedures and grid connection. Thus, the NECP and related recommendations of the Energy Community create the legal framework necessary for integrating renewable energy sources into the energy security system, strengthening energy supply autonomy, and reducing the risks associated with dependence on energy imports [10].

The NECP assessment and Energy Community recommendations emphasise the need to strengthen the legislative and regulatory environment for renewable energy in order to ensure Ukraine's long-term energy security. In particular, it is recommended to introduce stable support mechanisms for renewable energy producers, guarantees of electricity origin and transparent grid connection procedures. In addition, emphasis is placed on the implementation of European standards into national legislation, which will increase the transparency, predictability and investment attractiveness of the renewable energy sector. The implementation of these recommendations creates a legal platform for the sustainable development of renewable energy, its integration into the national energy system and a reduction in dependence on energy imports, which is critical for the country's energy security.

**Conclusions.** Ukraine's energy security is a multi-level phenomenon that encompasses the national, regional and local levels and requires the state's ability to ensure a stable and reliable energy supply. The integration of renewable energy sources into the national energy system is a key factor in achieving energy independence and sustainability, and legal support determines the effectiveness of this process.

The adoption of the Law of Ukraine «On Amendments to Certain Laws of Ukraine Regarding the Restoration and «Green» Transformation of Ukraine's Energy System» (2023) creates a legal framework

for the development of renewable energy sources. The law introduces guarantees of electricity origin, a feed-in premium mechanism through green auctions, support for the restoration of damaged generation facilities, and the introduction of aggregators that bring together small producers and consumers. This contributes to the economic stimulation of investment, decentralisation of production, and integration of small and medium-sized producers into the energy security system.

International assessments by the IEA, UNECE and Energy Community emphasise the strategic role of renewable energy sources in the stability of the energy system during military threats and external challenges. The IEA recommends the development of decentralised energy sources and storage systems to compensate for losses in centralised generation. The UNECE focuses on legal stability, safety standards and the harmonisation of Ukrainian legislation with RED II, which stimulates investment and reduces risks.

National strategic documents, in particular Ukraine's Energy Strategy until 2050, the Low Carbon Development Strategy and the National Renewable Energy Action Plan until 2030, define the directions for the transition to «green» energy, increasing the share of renewable energy sources and improving legislative mechanisms to ensure predictability and transparency of investments.

The National Energy and Climate Plan (NECP, 2024) sets a target of achieving a 27% share of renewable energy sources in final energy consumption by 2030 and implements EU standards. The NECP assessment and Energy Community recommendations emphasise the need for stable support mechanisms, guarantees of origin and transparent grid connection procedures to increase investment attractiveness.

The renewable energy sector has undergone significant changes during the war: damaged capacity and infrastructure needed to be quickly restored. At the same time, the modernisation of the energy system, the introduction of new technologies and international support are contributing to the decentralisation of generation and increased energy security.

Thus, renewable energy in Ukraine not only reduces dependence on energy imports but is also a key factor in the country's energy security. Legal support for the development of renewable energy sources, harmonisation with European standards and the introduction of stable economic incentives create the basis for a sustainable, secure and autonomous energy system in Ukraine.

## REFERENCES:

1. Хомин В.С. Нормативно-правова основа здійснення енергетичної трансформації України. *Економіка та право*. 2023. № 2. С. 26–42. URL: <https://economiclaw.kiev.ua/index.php/economiclaw/article/view/1115/1074> (дата звернення: 09.10.2025).
2. Про внесення змін до деяких Законів України щодо відновлення та «зеленої» трансформації енергетичної системи України: Закон України від 30 червня 2023 р. № 3220-IX. URL: <https://zakon.rada.gov.ua/laws/show/3220-20#Text> (дата звернення 09.10.2025).
3. Корольок Т.О., Зверевич Ю.О. Державна політика розвитку відновлювальної енергетики в Україні. *Державне будівництво*. 2024. № 2 (36). С. 83–99.
4. Renewables 2024 – Analysis. International Energy Agency, 2024. URL: <https://www.iea.org/reports/renewables-2024> (дата звернення 09.10.2025).
5. Rebuilding Ukraine with a Resilient, Carbon-Neutral Energy System: UNECE. 2023. URL: <https://unece.org/sustainable-energy/publications/rebuilding-ukraine-resilient-carbon-neutral-energy-system> (дата звернення 09.10.2025).
6. Kuzior A, Lobanova A, Kalashnikova L. Green Energy in Ukraine: State, Public Demands, and Trends. *Energies*. 2021; 14(22):7745. <https://doi.org/10.3390/en14227745>. URL: <https://www.mdpi.com/1996-1073/14/22/7745> (дата звернення 09.10.2025).
7. Sabishchenko O, Rębilas R, Sczygiol N, Urbański M. Ukraine Energy Sector Management Using Hybrid Renewable Energy Systems. *Energies*. 2020; 13(7):1776. <https://doi.org/10.3390/en13071776>. URL: <https://www.mdpi.com/1996-1073/13/7/1776> (дата звернення 09.10.2025).
8. Конеченков А. Сектор відновлюваної енергетики України до, під час та після війни. URL: <https://razumkov.org.ua/statti/sektor-vidnovlyuvanoyi-energetyky-ukrayiny-do-pid-chas-ta-pislya-viyny> (дата звернення 09.10.2025).
9. Про затвердження Національного плану дій з відновлюваної енергетики на період до 2030 року та плану заходів з його виконання: розпорядження Кабінету Міністрів України від

- 13 серпня 2024 р. № 761-р. URL: <https://zakon.rada.gov.ua/laws/show/761-2024-%D1%80#Tex> (дата звернення 09.10.2025).
10. National Energy and Climate Plan of Ukraine 2025-2030. Energy Community. URL: [https://www.energy-community.org/dam/jcr:9d144283-08ed-410b-a670-7fd15c7782f2/1\\_NECP\\_EnMachineTranslation.pdf&ved=2ahUKEwiZv5GY1JeQAxV-QVUIHc09BM0QFnoECBoQAQ&usg=AOvVaw3hk7A-PeyivW3n5dBcdmm2](https://www.energy-community.org/dam/jcr:9d144283-08ed-410b-a670-7fd15c7782f2/1_NECP_EnMachineTranslation.pdf&ved=2ahUKEwiZv5GY1JeQAxV-QVUIHc09BM0QFnoECBoQAQ&usg=AOvVaw3hk7A-PeyivW3n5dBcdmm2) (дата звернення 09.10.2025).