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DOI: <https://doi.org/10.32782/2224-6282/180-10>**Matiichuk Liubomur**

Candidate of Economic Sciences, Associate Professor,  
Associate Professor of the Department of Computer Science,  
Ternopil Ivan Puluj National Technical University  
ORCID: <https://orcid.org/0000-0001-6701-4683>

**Матійчук Л.П.**

кандидат економічних наук, доцент,  
доцент кафедри комп'ютерних наук,  
Тернопільський національний технічний університет імені Івана Пулюя

## REGULATION OF THE ENERGY SPHERE IN UKRAINE DURING THE PERIOD OF EUROPEAN INTEGRATION: REGULATORY AND LEGAL BASIS

*The article defines the aspects of the regulatory foundations of the regulation of the energy sector of Ukraine, which are possible conditions for the European integration of the state. Investigating the issue of regulation of the energy security system of the state, it is worth noting the complete lack of systematicity, as well as the lack of orderliness of regulatory and legal documents that ensure regulation of the energy sector. Regulatory and legal acts of the specified industry function under conditions of lobbying by individual subjects, under conditions of inconsistency in the priority directions of their development; the existence of regional energy markets, isolation of security positions of energy enterprises, ecological and technological requirements, standardization, licensing, etc. An essential aspect of forming physical protection of energy facilities is relying on business entities. The costs of ensuring the appropriate security are included in the gross costs upon prior agreement with the Regulator of Energy Markets. However, the Regulator currently does not have the legal authority to take into account such categories of expenses, which makes it impossible to legitimize the source of defense funding. It is worth noting that the energy infrastructure is not protected at the departmental level beforehand without appropriate coordination and coordination with other priority strategies and measures to ensure national security. The mentioned circumstances testify to threats to the energy security system due to the non-regulation of the legislative basis and foresee the need for significant improvement of mechanisms and tools of protection from the side of regulatory and legal support. The current circumstances of the economic system of Ukraine have caused changes in the energy legislation. At the moment, a new energy environment is being formed, which cannot be clarified by rigid regulatory documents. The implemented changes affect not only the peculiarities of the relationship between energy market subjects (producers, consumers, and the state) but also put pressure on the principles of regulation of the latter's activities; it refers to the application of EU approaches, the rejection of administrative levers for regulating the activity of markets and state paternalism, etc. The result is the emergence of new threats to the uninterrupted functioning of the country's energy sector due to the use of energy methods as an analog of "energy weapons." In turn, the previously accepted mechanisms and tools of management activity in the energy security system should be reviewed.*

**Keywords:** energy security, energy market, energy sphere of Ukraine, regulatory and legal support, European integration.

**JEL classification:** Q43, Q48

## РЕГУЛЮВАННЯ ЕНЕРГЕТИЧНОЇ СФЕРИ УКРАЇНИ В ПЕРІОД ЄВРОПЕЙСЬКОЇ ІНТЕГРАЦІЇ: НОРМАТИВНО-ПРАВОВІ ЗАСАДИ

*У статті визначені аспекти нормативно-правових підвалин регулювання енергетичної сфери України, що є можливими умовами європейської інтеграції держави. Досліджуючи питання регулювання системи енергетичної безпеки держави, варто відзначити повну не системність, а також не впорядкованість нормативно-правових документів, що забезпечують регулювання діяльності енергетичної сфери. Нормативно-правові акти зазначеної галузі функціонують за умов лобіювання окремими суб'єктами, за умов неузгодженості пріоритетних напрямів свого розвитку; існування регіональних енергетичних ринків, ізоляція безпекових позицій енергетичних підприємств, еколого-технологічні вимоги, стандартизація, ліцензування, тощо. Важливим аспектом формування фізичного захисту енергетичних об'єктів є те, що вони покладаються на суб'єктів господарювання. Витрати на забезпечення відповідної безпеки включаються у валові витрати за попереднім погодженням з Регулятором енергетичних ринків. Проте, Регулятор на сьогодні не має законних повноважень врахувати такі категорії витрат, що звісно, відповідно, унеможливує узаконити джерело фінансування захисту. Варто відмітити, що енергетична інфраструктура не захищається на відомчому рівні попередньо без відповідної координації та узгодження з іншими пріоритетами стратегіями та заходами забезпечення національної безпеки. Зазначені обставини свідчать про загрози системі енергетичної безпеки шляхом неурегульованості законодавчого базису та передбачають необхідність суттєвого вдосконалення механізмів та інструментів захисту з боку нормативно-правового супроводу. Сучасні обставини економічної системи України спричинили зміни в енергетичному законодавстві. На разі формується нове енергетичне середовище, прояснити яке закостенілими нормативними документами вже не можливо. Імплементовані зміни впливають не лише на особливості взаємовідносини між суб'єктами енергетичного ринку (виробниками, споживачами, державою), а й чинять тиск на принципи регулювання діяльності останніх; маєть на увазі застосування підходів ЄС, відмова від адміністративних важелів регулювання діяльності ринків та державного патерналізму тощо. Результатом є виникнення нових загроз безперерйному функціонуванню енергетичного сектору країни, внаслідок використання енергетичних методів, як аналогу «енергетичної зброї». В свою чергу слід переглянути раніше прийняті механізми та інструменти управлінської діяльності у системі енергетичної безпеки.*

**Ключові слова:** енергетична безпека, енергетичний ринок, енергетична сфера України, нормативно-правове забезпечення, європейська інтеграція.

**Introduction.** Delving into the issue of the energy security system of Ukraine, one should note the complete lack of systematicity and orderliness of legislative documents that regulate the activities of the energy sector. The regulatory and legal documents of the specified industry function under conditions of lobbying by individual subjects, under conditions of inconsistency in the priority areas of their development (existence of regional energy markets, isolation of safety positions of energy enterprises, ecological and technological requirements, standardization, licensing, etc.) [2].

**Analysis of modern foreign and domestic research and publications.** A large number of studies at both the theoretical and practical levels were devoted to studying issues related to Ukraine's energy sector.

In a certain way, the vast majority of them reveal the main provisions that have already been highlighted in the Ukrainian Energy Strategy. Among the research scientists in this field, it is worth noting: M. Korotya, V. Lagodienko, R. Romanyuk, and others.

Among the scientists who support the opinion regarding the consolidation and socialization of the state's normative-legal basis of the energy sector, it is worth highlighting S. Galyant, V. Kupchak, O. Novosad, K. Pavlov, O. Pavlova, O. Strishenets, and others.

**The purpose of this article is** a multifaceted study, as well as the determination of aspects, normative and legal foundations of the regulation of the energy sector of Ukraine, which are possible conditions for the European integration of the state.

**Coverage of the primary material.** The perceived difficulties also arise in the terminological interpretation of specific used categories. For example, in regulating the gas distribution activities of enterprises, it is practiced to use the category "crisis," which characterizes the threat of gas supply restriction. Similar threats to the electric power industry are called "emergencies."

An interesting explanation from the side of the departmental structures of the gaps in the legislation for the specified crisis cases. In particular, the final decision on the introduction of an "emergency" in the power industry is taken by the Cabinet of Ministers of Ukraine at the request of the Ministry of Energy and Coal Industry or the National Commission, which carries out state regulations in the fields of energy and communal services [24]. At the same time, in the gas distribution sector, at the request of the operator of the gas transportation system, the procedure for action in "crises" is approved [23].

Regarding the methods of regulation of the energy sector, a certain "ossification" of the legislative foundations, inadaptability to the current processes taking place in the energy sector, and new countermeasures to energy hazards are not considered. Ukraine has approved international commitments to create an environment for open, liberalized domestic energy markets.

Unfortunately, modern legislative gaps in ensuring the appropriate level of "energy security" and methods of protecting domestic energy markets cannot resist other states' policies [11].

A transparent legislative framework is a basis for implementing the country's energy strategy. First of all, it should be noted that the responsibility of the Cabinet of Ministers, the Parliament, and the President of Ukraine. They are directly involved in decision-making regarding

the formation and observance of the conditions and norms for implementing the energy strategy. Secondly, rather broad institutional support for the implementation of energy measures should be considered. Among the main ones, we should highlight [11; 39; 40].

Ministry of Environmental Protection and Natural Resources of Ukraine. The central powers are to ensure the policy of energy supply, the policy of sustainable energy development, and climate change, with further coordination of the government's energy policy and consulting the Parliament [14].

The Ministry of Finance is responsible for the taxation of the energy system [16].

The Ministry of Regional Development, Construction, and Housing and Communal Services (Minregion) is responsible for the implementation of relevant policies and project implementation at the local level [15].

The Ministry of Energy and Coal Industry acts as the central executive body of Ukraine on the issue of fuel and energy resources [13].

The State Agency for Energy Efficiency and Energy Saving (State Energy Efficiency Agency) is the central government body responsible for compliance with energy efficiency conditions and using renewable energy sources and technologies [4].

The National Commission for State Regulation in the Energy and Utilities Sectors, established in September 2014, oversees the natural gas and electricity markets and the heat sector. The National Commission for State Regulation in the Energy and Utilities Sectors replaced the National Commission for Regulation of State Energy Markets and the National Commission for Regulation of Utility Markets. The National Commission, which carries out state regulation in energy and communal services, is subordinate to the president and accountable to the Parliament [17].

The Antimonopoly Committee is responsible for avoiding excessive concentration of market power [1].

The State Inspectorate for Nuclear Regulation is responsible for operating nuclear facilities, including uranium mining, storing radioactive waste, and decommissioning at Chornobyl [3].

However, the inconsistency of the current legislation in terms of the formation of the country's ability to resist threats to the functioning of the energy sector makes the energy system vulnerable to such threats as physical instruments of sabotage, military invasion, terrorist manifestations, and cyber-attacks.

According to domestic legislative practice, as a rule, the organization of the protection of energy facilities is provided exclusively, which does not protect against other types of threats [18; 20].

An essential aspect of forming physical protection of energy facilities is relying on business entities. The costs of ensuring the appropriate security are included in the gross costs upon prior agreement with the Regulator of Energy Markets. However, the Regulator currently does not have the legal authority to consider such categories of expenses, which makes it impossible to legitimize the source of defense funding [19; 31; 32; 34].

It is worth noting that the energy infrastructure is not protected at the departmental level beforehand without appropriate coordination and coordination with other priority strategies and measures to ensure national security.

The mentioned circumstances indicate threats to the energy security system due to the non-regulation of the legislative basis and foresee the need for significant improvement of the mechanisms and tools of protection from the side of regulatory and legal support.

Transformations of market parameters of entrepreneurial activity in the electric power industry, restrictions on administrative measures, and the liberalization trend of the 1990s were powerless without an effective institutional environment of state regulation and, of course, did not allow the necessary modernization and rule-making changes to be made in this area [30; 40].

A special place in the regulatory and legal field of activity of the fuel and energy complex of Ukraine belongs to energy efficiency since the processes of Ukraine's integration into the world space as early as 2000 took place based on compliance with international economic principles, one of which is the improvement of energy efficiency [9].

World experience convincingly shows that the energy crisis of the 70s of the last century led to economic stagnation in industrially developed countries due to a decrease in the rate of economic development by the end of 1981 by 1.2 trillion dollars. This circumstance initiated the countdown of intensive energy-saving measures [12].

The implementation of these changes led to the adoption of several laws on the introduction of energy-efficient measures. In particular, in 1999, the Law of Ukraine "On Energy Saving," the relevant Presidential Decrees and Government Resolutions, several state programs for introducing energy efficiency, etc., were adopted.

However, the state, in a certain way, partially limited control and responsibility on its part in the specified documents. The majority of energy-efficient measures initiated by state programs did not receive the effectiveness of a state instrument and, as a rule, were aimed at solving sectoral energy problems and did not consider the need to solve territorial energy-saving issues [8].

The situation surrounding the energy and economic environment is not simple; the new geopolitical challenges facing Ukraine about energy security norms led to the adoption of the "Energy Strategy of Ukraine until 2035: "Security, Energy Efficiency, Competitiveness" dated August 18, 2017, No. 605-r. The government replaced the Energy Strategy 2030, which was already outdated at its adoption in July 2013.

Ukraine's new energy system envisages the separation of energy consumption and economic growth: GDP is projected to increase by 2.3 times over 20 years, with an average annual rate of 4.2%, while the total supply of primary energy (thermal power plant) increases by only 7 %. As a result, energy intensity is predicted to be more than half from 0.28 to 0.13 [28].

The critical areas of this document are the rationalization and increase in the use of own fuel and energy resources and the formation of an energy-saving model of energy security under the conditions of integration processes with the EU. The Energy Strategy of Ukraine defines the goals, tasks, and mechanisms for bringing the energy complex to a fundamentally new, high-quality level of development [37; 41].

First of all, the energy system of Ukraine is aimed at solving the problems of energy security in the conditions of the need to ensure the sovereignty of the state in the

circumstances of external aggression with the use of both the latest types of weapons (including information and hybrid methods of warfare) and non-military influences.

The document proposes transformational mechanisms for the period up to 2020 and defines strategic guidelines for development until 2035. Reducing the energy intensity of the economy, diversifying sources and ways of supplying energy resources, and increasing domestic production [36].

The implementation of the energy system in Ukraine involves the implementation of three main stages:

Stage 1 involves reforming the energy sector (until 2020). This stage aims to form liberalized, competitive energy markets and limit the influence of the state in their functioning;

the 2nd stage provides for optimization and introduction of innovative energy infrastructure development (until 2025). This stage focuses on attracting the necessary investments in the energy sector and developing energy infrastructure with its subsequent integration into the European system.

the 3rd stage determines the provision of stable development of the energy system (until 2035). At this stage, it is envisaged to fulfill obligations to reduce greenhouse gas emissions, activate renewable energy sources, and ensure energy security by increasing gas production, including unconventional gas and offshore drilling. The ESU ensures full compliance with obligations to limit carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and dust emissions from large combustion plants, which provides for the Emissions Trading System (ETS) until 2035 [28].

The need to adhere to the principles of energy security and sustainable development, together with commitments to the European Union and the IMF, have led to changes across sectors, including tariff deregulation, privatization, and improved corporate governance of state-owned enterprises.

Ukraine joined the Energy Community Treaty in February 2011 and began implementing EU energy legislation. This influenced the formation of laws that focused on compliance with EU standards, mainly in electricity and natural gas.

The following energy market, unbundling system, and increasing the share of renewable energy sources in the energy balance are considered in the basis of the adopted laws.

The energy market is designed to maintain state dominance and subsidize households and the public sector energy consumption. Therefore, introducing a practical regulatory framework based on competition, market transparency, and increasing the level of investment attractiveness is essential in adopting the legislative framework [35].

The changes that took place in the energy system of Ukraine required determining the directions and spectrums of the behavior of business entities under the conditions of the relevant legislative reforms.

Until July 2019, the electricity market functioned according to the model of one buyer. Hydro, nuclear, cogeneration and renewable generators were paid fixed prices set by the National Energy and Utilities Regulatory Commission, while thermal plants competed for the remaining market demand.

One of the first legislative changes was the Law on the Natural Gas Market, which the Parliament adopted in March 2015. It provided for the full liberalization of the gas market by 2017 (it was soon postponed to 2020). According to the terms of the Law, a unified price policy for gas was established within Ukraine's regulatory processes, allowing consumers to purchase energy services [27].

Subsequently, in 2017, a new Law on the Electricity Market was adopted, which meets the Third EU Energy Package requirements and legalizes joining the ENTSO-E system (European Network of Electricity Transmission System Operators). At the same time, under this Law, the model of market operations of one buyer was changed to the model of bilateral contracts. This led to the structuring of the electricity market in three areas: the guaranteed buyer (state trader), the market operator (responsible for the organization), and "Energorynok" (responsible for solving outstanding debts). The turn of PJSC "Ukrenergo" was determined to be the regulator of commercial accounting and the administrator of settlements [17; 26].

DTEK became the monopoly of the coal industry, which owns the majority of coal mining capacities and coal-fired power plants since coal is not subject to market pricing, which is regulated by the National Commission, which carries out state regulation in the fields of energy and communal services.

An essential element in the electricity market is capacity maneuvering and demand management. In this direction, at the European Union's legislative level, the demand management issues are considered in Directive 2012/27/EU. In particular, clause 15.8 directly indicates that the regulators of EU member states should encourage the participation of aggregators at the generation level in the operation of electricity markets [6].

To implement this directive, 11 member states of the European Union have already developed a regulatory framework for the operation of electricity demand management aggregators. As a result, more than 22 GW of managed demand capacity is currently registered in Europe. However, according to the estimates of the European Commission, this potential will be increased to 160 GW by 2030 [5; 42].

The situation that developed in 2014, despite the approval of the commitment of the Parliament and the government in the coalition agreement of November 2014, caused the gradual termination of all coal subsidies and the liquidation of inefficient mines. In turn, this formed a new methodology for calculating the price of

Rotterdam+ coal, which was proposed by the National Commission, carrying out state regulation in energy and communal services [10].

This scheme is based on the purchase of coal from Europe, which involved additional transportation costs, increased energy prices for consumers, and forced the state to continue providing subsidies in significant volumes 17.

However, this Rotterdam+ methodology was completely discontinued only in July 2019 with the introduction of a new, more competitive energy market structure. Despite this, state-owned mines under the Ministry of Energy and Coal Industry are still unprofitable and require radical changes and support from the state budget.

In 2017, the government also adopted several laws developed by the State Energy Efficiency Agency and the Ministry of Regions to regulate the energy market: the Law on Energy Efficiency in Buildings; Law on commercial accounting of communal services; Law on the Energy Efficiency Fund [22; 25; 29].

Regarding renewable energy sources, the Ukrainian legislation provides affordable tariffs for electricity produced from RES, the so-called "green tariff" [21].

Also, since 2014, households have been allowed to sell solar electricity directly to energy suppliers.

The question of the functioning of the energy security system leads to the difficulties of identifying the object of research following the Energy Strategy of Ukraine, its further functioning and development, the implementation of systematic control, and the selection of the proper influence tools.

#### Conclusions and prospects for further research.

The current circumstances of the economic system of Ukraine have caused changes in the energy legislation. At the moment, a new energy environment is being formed, which cannot be clarified by rigid regulatory documents. The implemented changes affect not only the specifics of the relationship between energy market subjects (producers, consumers, the state) but also put pressure on the principles of regulation of the latter's activities (this means the application of EU approaches, the rejection of administrative levers for regulating the activity of markets and state paternalism, etc.) [33].

The result is the emergence of new threats to the uninterrupted functioning of the country's energy sector due to the use of energy methods as an analog of "energy weapons." In turn, the previously accepted mechanisms, and tools of management activity in the energy security system should be reviewed [31; 32].

#### References:

1. Antimonopoly Committee of Ukraine. Available at: <https://amcu.gov.ua> (accessed 05 April 2022).
2. Haliat S. R., Novosad O. V., Pavlova O. M., Pavlov K.V. Investytsiino-innovatsiina spriamovanist hazorozpodilnykh pidpriemstv rehionu [Investment and innovation orientation of gas distribution enterprises of the region]. *International scientific journal «Internauka». Series: «Economic Sciences»*, no. 1. DOI <https://doi.org/10.25313/2520-2294-2020-1-5424> (accessed 05 April 2022).
3. State Nuclear Regulatory Inspectorate of Ukraine. Available at: <https://snriu.gov.ua> (accessed 05 April 2022).
4. State Agency on Energy Efficiency and Energy Saving of Ukraine (SAEE). Available at: <https://sae.gov.ua/contacts> (accessed 05 April 2022).
5. Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data. Available at: [https://zakon.rada.gov.ua/laws/show/994\\_242#Text](https://zakon.rada.gov.ua/laws/show/994_242#Text) (accessed 05 April 2022).
6. Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC Text with EEA relevance. Available at: [https://zakon.rada.gov.ua/laws/show/984\\_017-12#Text](https://zakon.rada.gov.ua/laws/show/984_017-12#Text) (accessed 05 April 2022).

7. Enerhetychna bezpeka Ukrainy: metodolohiia systemnoho analizu ta strateichnoho planuvannia [Energy security of Ukraine: methodology of system analysis and strategic planning]. Kyiv: NISD. Available at: <https://niss.gov.ua/publikacii/analitichni-dopovidi/energetichna-bezpeka-ukraini-metodolohiia-sistemnoho-analizu-ta>. (in Ukrainian)
8. Zakon Ukrainy «Pro enerhozberezhennia» vid 01.07.1994 № 74/94-BP [Law of Ukraine «On Energy Saving» dated July 01, 1994 No. 74/94-BP]. Available at: <https://zakon.rada.gov.ua/laws/show/74/94-%D0%B2%D1%80#Text> (accessed 05 April 2022).
9. Kleyner G. B. (1986) Proizvodstvenniye funktsii: teoriya, metody, primeneniya [Production functions: theory, methods, applications]. Moscow: Finansi i statistika. (in Russian)
10. Koalitsiina uhoda. Holovna – Obiednannia «Samopomich» [Coalition agreement. Home – Samopomich Association]. Available at: [https://samopomich.ua/wp-content/uploads/2014/11/Koalitsiyna\\_uhoda\\_parafovana\\_20.11.pdf](https://samopomich.ua/wp-content/uploads/2014/11/Koalitsiyna_uhoda_parafovana_20.11.pdf) (accessed 05 April 2022).
11. Kupchak V. R., Pavlova O. M., Pavlov K. V., Lahodiienko V. R. (2019) Formuvannia ta rehulivannia rehionalnykh enerhetychnykh system: teoriia, metodolohiia ta praktyka [Formation and regulation of regional energy systems: theory, methodology and practice]. Lutsk: CPD Hadiak Zhanna Volodymyrivna, drukarnia «Volynpolihraf». (in Ukrainian)
12. International Energy Agency. Available at: [www.iea.org](http://www.iea.org) (accessed 05 April 2022).
13. Ministry of Energy of Ukraine. Available at: <http://mpe.kmu.gov.ua/> (accessed 05 April 2022).
14. Ministry of Environmental Protection and Natural Resources of Ukraine. Available at: <https://mepr.gov.ua> (accessed 05 April 2022).
15. Ministry of Communities and Territories Development of Ukraine. Available at: <https://www.minregion.gov.ua> (accessed 05 April 2022).
16. Ministry of Finance of Ukraine. Available at: <https://mof.gov.ua> (accessed 05 April 2022).
17. The National Commission for State Regulation of Energy and Public Utilities. Available at: <https://www.nerc.gov.ua/> (accessed 05 April 2022).
18. Pavlov K. V., Pavlova O. M., Kupchak V. R. (2019) Priorityetni napriamy derzhavnoho rehulivannia konkurentsii: vitchyzniani ta zarubizhnyi dosvid [Priority areas of state regulation of competition: domestic and foreign experience]. *Economic journal of Lesia Ukrainka Eastern European National University*, no. 1 (17), pp. 14–20.
19. Pavlova O. M. (2019) Tovarna forma orhanizatsii suspilnoho vyrobnytstva v umovakh rozvytku natsionalnoi ekonomiky Ukrainy (druhoi polovyny XVII – kintsia XVIII st.) [The commodity form of the organization of social production in the conditions of the development of the national economy of Ukraine (the second half of the 17th – the end of the 18th century)]. Lutsk: Vydavnytstvo «Teren». (in Ukrainian)
20. Pysanko S. V., Pavlova O. M., Pavlov K. V. (2020) Rol ta znachennia investytsiino-innovatsiinykh protsesiv v elektroenerhetychnii haluzi rehionu [The role and significance of investment and innovation processes in the electric power industry of the region]. *Ukrainian Journal of Applied Economics*, vol. 5, no. 3, pp. 320–328.
21. Zakon Ukrainy «Pro vnesennia zmin do deiakykh zakoniv Ukrainy shchodo zabezpechennia konkurentnykh umov vyrobnytstva elektroenerhii z alternatyvnykh dzhherel enerhii» vid 25.04.2019 № 2712-VIII [Law of Ukraine «On Amendments to Certain Laws of Ukraine Regarding Ensuring Competitive Conditions for Electricity Production from Alternative Energy Sources» dated April 25, 2019 No. 2712-VIII]. Available at: <https://zakon.rada.gov.ua/laws/show/2712-19#Text> (accessed 05 April 2022).
22. Zakon Ukrainy «Pro enerhetychnu efektyvnist budivel» vid 22.06.2017 № 2118-VIII [Law of Ukraine «On Energy Efficiency of Buildings» dated June 22, 2017 No. 2118-VIII]. Available at: <https://zakon.rada.gov.ua/laws/show/2118-19#Text> (accessed 05 April 2022).
23. Nakaz Minenerhovuhillia «Pro zatverdzhennia Natsionalnoho Planu dii» vid 02.11.2015 № 687 [Order of the Ministry of Energy and Coal «On approval of the National Action Plan» dated November 2, 2015 No. 687]. Available at: <https://zakon.rada.gov.ua/laws/show/z1458-15#Text> (accessed 05 April 2022).
24. Postanova Kabinetu Ministriv Ukrainy «Pro zatverdzhennia Poriadku vzhytta tymchasovykh nadzvychainykh zakhodiv z podolannia naslidkiv tryvaloho porushennia normalnoi roboty elektrychnoi enerhii» vid 13.08.2014 № 372 [Resolution of the Cabinet of Ministers of Ukraine «On Approval of the Procedure for Taking Temporary Emergency Measures to Overcome the Consequences of a Prolonged Disruption of the Normal Operation of Electric Energy» dated August 13, 2014 No. 372]. Available at: <https://zakon.rada.gov.ua/laws/show/372-2014-%D0%BF#Text> (accessed 05 April 2022).
25. Zakon Ukrainy «Pro komertsiiinyi oblik teplovoi enerhii ta vodopostachannia» vid 22.06.2017 № 2119-VIII [Law of Ukraine «On Commercial Accounting of Thermal Energy and Water Supply» dated June 22, 2017 No. 2119-VIII]. Available at: <https://zakon.rada.gov.ua/laws/show/2119-19#Text> (accessed 05 April 2022).
26. Zakon Ukrainy «Pro rynek elektrychnoi enerhii vid 13.04.2017 №2019-VIII» [Law of Ukraine «On the Electric Energy Market» dated April 13, 2017 No. 2019-VIII]. Available at: <https://zakon.rada.gov.ua/laws/show/2019-19#Text> (accessed 05 April 2022).
27. Zakon Ukrainy «Pro rynek pryrodnoho hazu» vid 09.04.2015 №329-VIII [Law of Ukraine «On the Natural Gas Market» dated April 9, 2015 No. 329-VIII]. Available at: <https://zakon.rada.gov.ua/laws/show/329-19#Text> (accessed 05 April 2022).
28. Rozporiadzhennia Kabinetu Ministriv Ukrainy «Pro skhvalennia Enerhetychnoi stratehii Ukrainy na period do 2035 roku» vid 18.08.2017 № 605-r [Decree of the Cabinet of Ministers of Ukraine «On the approval of the Energy Strategy of Ukraine for the period until 2035» dated August 18, 2017 No. 605]. Available at: <http://zakon3.rada.gov.ua/laws/show/605-2017-r> (accessed 05 April 2022).
29. Zakon Ukrainy «Pro Fond enerhoefektyvnosti» vid 08.06.2017 № 2095-VIII [Law of Ukraine «On the Energy Efficiency Fund» dated June 8, 2017 No. 2095-VIII]. Available at: <https://zakon.rada.gov.ua/laws/show/2095-19#Text> (accessed 05 April 2022).
30. Strishenets O. M. (2016) Svitovi tendentsii rozvytku ekonomiky enerhetyky u XXI st.: adaptatsiia do ukraïnskykh realii [Global trends in the development of the energy economy in the 21st century: adaptation to Ukrainian realities]. *Economic journal of Lesia Ukrainka Eastern European National University*, no. 1, pp. 73–79.
31. Sukhodolia O. M. (2018) Stiikist funktsionuvannia enerhetychnoi systemy chy stiikist enerhozabezpechennia spozhyvachiv: postanovka problemy [Sustainability of the functioning of the energy system or sustainability of energy supply to consumers: problem statement]. *Strategic Priorities*, no. 2, pp. 101–117.
32. Sukhodolia O. M., Smenkovskiy A. Yu. (2013) Enerhetychnyi sektor Ukrainy: perspektyva reformuvannia chy stahnatsii [Smenkovskiy A. Yu. Energy sector of Ukraine: perspective of reform or stagnation]. *Strategic Priorities*, no. 2, pp. 74–80.
33. Ukrtransnafta. Available at: <https://www.ukrtransnafta.com/> (accessed 05 April 2022).
34. Uriad pidpysav uhody shchodo rozpodilu dilianok na vydobuvannia hazu [The government signed agreements on the distribution of plots for gas extraction]. Available at: <https://www.epravda.com.ua/news/2020/12/31/669689> (accessed 05 April 2022).

35. Korotyа M. I., Pavlov K. V., Pavlova O. M. (2020) Regulation of activity of regional gas distribution enterprises of Ukraine. Lutsk: SPD Gadyak Zhanna Volodymyrivna, printing house «Volynpoligraf». (in Ukrainian)
36. Novosa O., Perevozova I., Obelnytska K., Popadynets N. et al. (2021). Integral estimation of the competitiveness level of the western Ukrainian gas distribution companies. *Accounting*, no. 7(5), pp. 1073–1084.
37. Pavlov K., Korotyа M. et al. (2020) Determination and Management of Gas Distribution Companies' Competitive Positions. In: Mrugalska B., Trzcielinski S., Karwowski W., Di Nicolantonio M., Rossi E. (eds) *Advances in Manufacturing, Production Management and Process Control. AHFE 2020. Advances in Intelligent Systems and Computing*, vol. 1216. Springer, Cham.
38. Pavlov K., Pavlova O. et al. (2020) Optimization of multi-channel queuing systems with a single retail attempt: Economic approach. *Decision Science Letters* 9. Available at: [http://www.growingscience.com/dsl/online/dsl\\_2020\\_22.pdf](http://www.growingscience.com/dsl/online/dsl_2020_22.pdf) (accessed 05 April 2022).
39. Pavlov K., Pavlova O., Kupchak V. (2019) Integral Indicators Based on Competitiveness Capacity Characteristics of Regional Real Estate Markets of Ukraine. *Journal of Competitiveness*, no. 11 (3), pp. 87–108.
40. Romaniuk R., Pysanko S. et al. (2021) Prospects of implementation of a new model of functioning of the electric power industry south-east region of Ukraine. *Znanstvena misel journal*, vol. 1, no. 50, pp. 21–27.
41. Romanyuk R., Pavlov K., Pavlova O. (2021) Features of development and prospects of transformation of the electricity industry of the region. *International scientific journal «Internauka». Series: «Economic Sciences»*, no. 1. DOI: <https://doi.org/10.25313/2520-2294-2021-1-6854> (accessed 05 April 2022).
42. Smart Energy Europe. Available at: <https://smarten.eu/> (accessed 05 April 2022).

### Список використаних джерел:

1. Антимонопольний комітет України. URL: <https://amcu.gov.ua> (дата звернення: 05.04.2022).
2. Галянт С. Р., Новосад О. В., Павлова О. М., Павлов К. В. Інвестиційно-інноваційна спрямованість газорозподільних підприємств регіону. *Міжнародний науковий журнал «Інтернаука». Серія: «Економічні науки»*. 2020. № 1. DOI: <https://doi.org/10.25313/2520-2294-2020-1-5424> (дата звернення: 05.04.2022).
3. Державна інспекція ядерного регулювання України. URL: <https://snriu.gov.ua> (дата звернення: 05.04.2022).
4. Держенергоефективності України. URL: <https://saec.gov.ua/contacts>. (дата звернення: 05.04.2022).
5. Директива 95/46/ЄС Європейського Парламенту і Ради "Про захист фізичних осіб при обробці персональних даних і про вільне переміщення таких даних" від 24 жовтня 1995 року. URL: [https://zakon.rada.gov.ua/laws/show/994\\_242#Text](https://zakon.rada.gov.ua/laws/show/994_242#Text) (дата звернення: 05.04.2022).
6. Директива Європейського Парламенту і Ради 2012/27/ЄС. URL: [https://zakon.rada.gov.ua/laws/show/984\\_017-12#Text](https://zakon.rada.gov.ua/laws/show/984_017-12#Text) (дата звернення: 05.04.2022).
7. Енергетична безпека України: методологія системного аналізу та стратегічного планування : аналіт. доп. Київ : НІСД, 2020. 178 с. URL: <https://niss.gov.ua/publikacii/analitichni-dopovidi/energetichna-bezpeka-ukraini-metodologiya-sistemnogo-analizu-ta> (дата звернення: 05.04.2022).
8. Закон України «Про енергозбереження» від 01.07.1994 № 74/94-ВР. URL: <https://zakon.rada.gov.ua/laws/show/74/94-%D0%B2%D1%80#Text> (дата звернення: 05.04.2022).
9. Клейнер Г.Б. Производственные функции: теория, методы, применения. Москва : Финансы и статистика, 1986. 239 с.
10. Коаліційна угода. Головна – Об'єднання «Самопоміч». URL: [https://samopomich.ua/wp-content/uploads/2014/11/Koalitsiynna\\_uhoda\\_parafovana\\_20.11.pdf](https://samopomich.ua/wp-content/uploads/2014/11/Koalitsiynna_uhoda_parafovana_20.11.pdf) (дата звернення: 05.04.2022).
11. Купчак В. Р., Павлова О. М., Павлов К. В., Лагодієнко В. Р. Формування та регулювання регіональних енергетичних систем: теорія, методологія та практика : монографія. Луцьк : СПД Гадяк Жанна Володимирівна, друкарня «Волиньполіграф», 2019. 346 с.
12. Міжнародне енергетичне агентство. URL: [www.iea.org](http://www.iea.org) (дата звернення: 05.04.2022).
13. Міністерство енергетики України. URL: <http://mpe.kmu.gov.ua/> (дата звернення: 05.04.2022).
14. Міністерство захисту довкілля та природних ресурсів України. URL: <https://mepg.gov.ua> (дата звернення: 05.04.2022).
15. Міністерство розвитку громад та територій України. URL: <https://www.minregion.gov.ua> (дата звернення: 05.04.2022).
16. Міністерство Фінансів України. URL: <https://mof.gov.ua> (дата звернення: 05.04.2022).
17. Національна комісія, що здійснює державне регулювання у сферах енергетики та комунальних послуг. URL: <https://www.necg.gov.ua/> (дата звернення: 05.04.2022).
18. Павлов К. В., Павлова О. М., Купчак В. Р. Пріоритетні напрями державного регулювання конкуренції: вітчизняний та зарубіжний досвід. *Економічний часопис Східноєвропейського національного університету імені Лесі Українки*. 2019. № 1 (17). С. 14–20.
19. Павлова О. М. Товарна форма організації суспільного виробництва в умовах розвитку національної економіки України (другої половини XVII – кінця XVIII ст.) : монографія. Луцьк : Видавництво «Терен», 2019. 480 с.
20. Писанко С. В., Павлова О. М., Павлов К. В. Роль та значення інвестиційно-інноваційних процесів в електроенергетичній галузі регіону. *Український журнал прикладної економіки*. 2020. Том 5. № 3. С. 320–328.
21. Закон України «Про внесення змін до деяких законів України щодо забезпечення конкурентних умов виробництва електроенергії з альтернативних джерел енергії» від 25.04.2019 № 2712-VIII. URL: <https://zakon.rada.gov.ua/laws/show/2712-19#Text> (дата звернення: 05.04.2022).
22. Закон України «Про енергетичну ефективність будівель» від 22.06.2017 № 2118-VIII. URL: <https://zakon.rada.gov.ua/laws/show/2118-19#Text> (дата звернення: 05.04.2022).
23. Наказ Міненерговугілля «Про затвердження Національного Плану дій» від 02.11.2015 № 687. URL: <https://zakon.rada.gov.ua/laws/show/z1458-15#Text> (дата звернення: 05.04.2022).
24. Постанова Кабінету Міністрів України «Про затвердження Порядку вжиття тимчасових надзвичайних заходів з подолання наслідків тривалого порушення нормальної роботи електричної енергії» від 13.08.2014 № 372. URL: <https://zakon.rada.gov.ua/laws/show/372-2014-%D0%BF#Text> (дата звернення: 05.04.2022).
25. Закон України «Про комерційний облік теплової енергії та водопостачання» від 22.06.2017 № 2119-VIII. URL: <https://zakon.rada.gov.ua/laws/show/2119-19#Text> (дата звернення: 05.04.2022).

26. Закон України «Про ринок електричної енергії від 13.04.2017 №2019-VIII». URL: <https://zakon.rada.gov.ua/laws/show/2019-19#Text> (дата звернення: 05.04.2022).
27. Закон України «Про ринок природного газу» від 09.04.2015 №329-VIII. URL: <https://zakon.rada.gov.ua/laws/show/329-19#Text> (дата звернення: 05.04.2022).
28. Розпорядження Кабінету Міністрів України «Про схвалення Енергетичної стратегії України на період до 2035 року» від 18.08.2017 № 605-р. URL: <http://zakon3.rada.gov.ua/laws/show/605-2017-р> (дата звернення: 05.04.2022).
29. Закон України «Про Фонд енергоефективності» від 08.06.2017 № 2095-VIII. URL: <https://zakon.rada.gov.ua/laws/show/2095-19#Text> (дата звернення: 05.04.2022).
30. Стрішенець О. М. Світові тенденції розвитку економіки енергетики у XXI ст.: адаптація до українських реалій. *Економічний часопис Східноєвропейського національного університету імені Лесі Українки*. 2016. № 1. С. 73–79.
31. Суходоля О. М. Стійкість функціонування енергетичної системи чи стійкість енергозабезпечення споживачів: поста новка проблеми. *Стратегічні пріоритети*. 2018. № 2. С. 101–117.
32. Суходоля О. М., Сменковський А. Ю. Енергетичний сектор України: перспектива реформування чи стагнації. *Стратегічні пріоритети*. 2013. № 2. С. 74–80.
33. Укртрансгаза. URL: <https://www.ukrtransnafta.com/> (дата звернення: 05.04.2022).
34. Уряд підписав угоди щодо розподілу ділянок на видобування газу. URL: <https://www.epravda.com.ua/news/2020/12/31/669689> (дата звернення: 05.04.2022).
35. Korotyа M. I., Pavlov K. V., Pavlova O. M., Regulation of activity of regional gas distribution enterprises of Ukraine: monograph. Lutsk: SPD Gadyak Zhanna Volodymyrivna, printing house «Volynpoligraf», 2020. 256 p.
36. Novosa O., Perevozova I., Obelnytska K., Popadynet N. et al. Integral estimation of the competitiveness level of the western Ukrainian gas distribution companies. *Accounting*. 2021. № 7(5). P. 1073–1084.
37. Pavlov K., Korotia M. et al. Determination and Management of Gas Distribution Companies' Competitive Positions. In: Mrugalska B., Trzcielinski S., Karwowski W., Di Nicolantonio M., Rossi E. (eds) *Advances in Manufacturing, Production Management and Process Control. AHFE 2020. Advances in Intelligent Systems and Computing*, 2020. Vol. 1216. Springer, Cham.
38. Pavlov Kostiantyn, Pavlova Olena et al. Optimization of multi-channel queuing systems with a single retail attempt: Economic approach. *Decision Science Letters*. *Decision Science Letters* 9 (2020). URL: [http://www.growingscience.com/dsl/online/dsl\\_2020\\_22.pdf](http://www.growingscience.com/dsl/online/dsl_2020_22.pdf) (дата звернення: 05.04.2022).
39. Pavlov K., Pavlova O., Kupchak V. Integral Indicators Based on Competitiveness Capacity Characteristics of Regional Real Estate Markets of Ukraine. *Journal of Competitiveness*. 2019. № 11 (3). P. 87–108.
40. Romaniuk R., Pysanko S. et al. Prospects of implementation of a new model of functioning of the electric power industry south-east region of Ukraine. *Znanstvena misel journal*. 2021. Vol. 1. № 50. P. 21–27.
41. Romanyuk R., Pavlov K., Pavlova O. Features of development and prospects of transformation of the electricity industry of the region. *International scientific journal «Internauka». Series: «Economic Sciences»*. 2021. № 1. DOI: <https://doi.org/10.25313/2520-2294-2021-1-6854> (дата звернення: 05.04.2022).
42. Smart Energy Europe. URL: <https://smarten.eu/> (дата звернення: 05.04.2022).