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THE BASICS OF FORMING THE PRINCIPLES OF FUNCTIONING AND DEVELOPMENT OF THE ENERGY MARKET IN UKRAINE

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ОСНОВИ ФОРМУВАННЯ ПРИНЦИПІВ ФУНКЦІОНУВАННЯ ТА РОЗВИТКУ РИНКУ ЕНЕРГЕТИКИ В УКРАЇНІ

The article examines the historical aspects of the formation of the energy market in independent Ukraine. The first principles of the Ukrainian energy market and their effectiveness are presented; steps towards European integration and their effectiveness are summarized. The components covered by the energy sector and its impact on stability and quality of life are indicated.

The article reveals the essence of the concept of "principle", its etymology and the role of principles in shaping the "rules of the game" and development of the

energy market. The importance of the principles of market economy and business principles as key points in the organization of the energy market in Ukraine and the world is emphasized. The author outlines the logical principles and mechanisms of state regulation and their extension to the participants of the domestic energy market.

The article examines the current factors of the external and internal environment and their impact on the functioning of the modern energy market. The importance of digitalization and digital technologies in the formation of the energy market is characterized. The experience of development of the world energy market in the context of globalization and the main provisions that should be taken into account when forming the principles of development of the energy market of Ukraine in the context of a full-fledged participant in the world energy market are analyzed. The author formulates the trends in the development of the energy market in the context of domestic and global realities, in the context of integration processes, and presents the key aspects of the Energy Strategy of Ukraine until 2050.

Using a combination of empirical and theoretical research methods, as well as methods of analysis and generalization, the author identifies and conceptualizes the main fundamental provisions that define the principles of energy market development in Ukraine, which should ensure optimal operating conditions and stimulate the development of all market participants in the context of macro- and meso-environmental factors.

У статті розглядаються історичні аспекти формування ринку енергетики незалежної України. Наведено перші принципи і особливості українського ринку енергетики та їх результативність; узагальнено кроки у напрямку євроінтеграції та їх ефективність. Вказано складові, які охоплює енергетична сфера та її вплив на стабільність та якість життя.

Розкривається сутність поняття «принцип», його етимологія та роль принципів у формуванні «правил гри» і розвитку ринку енергетики. Підкреслюється значення принципів ринкової економіки та принципів господарювання як ключових моментів організації ринку енергетики в Україні і світі. Окреслюються логічні засади й механізми державного регулювання та їх

поширення на учасників внутрішнього ринку енергетики.

Досліджуються актуальні чинники зовнішнього і внутрішнього середовища та їх вплив на функціонування сучасного ринку енергетики. Характеризується значення цифровізації, цифрових технологій у формуванні ринку енергетики. Аналізується досвід розвитку світового енергетичного ринку в умовах глобалізації та основні положення, які мають бути враховані при формуванні принципів розвитку ринку енергетики України в контексті повноправного учасника світового енергетичного ринку. Входження України до об'єднаної енергосистеми континентальної Європи ENTSO-E поставило нові виклики перед національною енергетичною системою, що адаптації її до європейських норм та стандартів, які також є умовою повноправного вступу України в ЄС. Сформульовано тенденції розвитку енергоринку в контексті вітчизняних і світових реалій сьогодення, в умовах інтеграційних процесів, наводяться ключові аспекти Енергетичної стратегії України до 2050 року.

Використовуючи сукупність методів емпіричного і теоретичного дослідження, а також методи аналізу та узагальнення, виокремлено та концептуалізовано основні засадничі положення, які визначають принципи розвитку ринку енергетики в Україні, мають забезпечити оптимальні умови функціонування та стимулюватимуть розвиток усіх учасників ринку енергії в контексті чинників макро- і мезосередовища.

Keywords: *energy market; principle; energy system, global energy market.*

Ключові слава: *ринок енергетики; принцип; енергетична система, світовий енергетичний ринок.*

Statement of the problem in general and its connection with important scientific or practical tasks. The architecture of the energy market is complex. The first principles for the functioning and development of the energy market in independent Ukraine were formulated in the mid-1990s. It was then that foreign consultants were engaged to create its model and define the principles of the Ukrainian energy market at that time:

- preservation of the country's unified energy system,

- centralized management of the country's energy system,

- demonopolization of regional energy associations,

- creating conditions for competition among energy producers and electricity suppliers.

However, this did not lead to significant changes in the energy market, because electricity producers sold electricity at regulated prices, the weighted average price was calculated between all types of electricity producers, it was also regulated, and electricity suppliers bought electricity from one state-owned enterprise at the same price, and the state regulated electricity prices at all levels. The market model was centralized and administrative.

At the end of 1999, the Ministries of Energy, Coal Industry, State Departments for Electricity, Oil, Gas and Oil Refining, and Nuclear Energy were transformed into the Ministry of Fuel and Energy of Ukraine.

In 2010, Ukraine joined the Energy Community of non-EU countries that are not yet members of the EU but are moving in the European direction of energy market reform. Significant reforms of the Ukrainian energy market began in 2019, when new market participants emerged: a trader, a spot market operator, etc.; administrative market management, administrative price formation, gave way to market price formation and the development of competition. The idea of building a European model of the energy market was correct, but the peculiarities of its adaptation and implementation in Ukraine, as well as the existing market manipulations, proved to be problematic.

The development of society, the progress of science, technology and the latest technologies have determined the need to combine the efforts of scientists and practitioners at the international level. The Russian military invasion accelerated the changes in Ukraine's power system, against which, on March 16, 2022, Ukraine's power system was finally disconnected from its Soviet past - the power grids of Belarus and Russia - and fully synchronized with the ENTSO-E power grid of continental Europe. This decision was made on March 11, 2022, by the ENTSO-E association of system operators. Ukraine's international obligation to form a

competitive energy market is enshrined in the 1998 Energy Charter Treaty [1] and the 2005 Energy Community Treaty [2].

The modern energy system of Ukraine is headed by the Ministry of Energy of Ukraine, which coordinates the activities of the following sectors [3]:

- electric power industry
- nuclear energy,
- oil and gas industry,
- coal industry,
- energy efficiency,
- green energy.

The functions of the Ministry of Energy of Ukraine include:

- formulation and implementation of state policy in the electric power, nuclear power, coal mining, peat mining, oil and gas and oil and gas processing complexes;

- formulation and implementation of state policy in the field of efficient use of fuel and energy resources, energy saving, renewable energy sources and alternative fuels (except for issues of ensuring energy efficiency of buildings and other structures) and in the field of supervision (control) in the fields of electricity and heat supply [3].

The energy sector covers, first of all, energy markets and energy resources, as well as such areas of energy-related activities as markets for energy technologies and equipment based on international specialization and cooperation; a system of energy information, knowledge and know-how; a system of national energy legislation, regulations, technical rules, etc., including those related to environmental protection in energy activities [4]. Social and economic stability, ensuring an adequate level of quality of life of the population are directly related to the reliability and efficiency of the Ukrainian energy market. The new realities require new approaches to the situation and the definition of the fundamental principles of functioning and development that are in line with the trends in the global energy market.

Analysis of recent research and publications, which initiated the solution of this problem and on which the author relies, the selection of previously unsolved parts of the general problem, which is the subject of this article. The

issues of reforming the Ukrainian energy market, comparing it with the European model, and analyzing its performance have been studied by a significant number of experts [5-9]. Summaries of the state and development of the energy market are reflected in the official reports of participating enterprises, in particular, the Market Operator Joint Stock Company, which operates on the principle of an exchange in the electricity market [10].

Formulation of the goals of the article (task statement). The purpose of this article is to study the factors of influence of the external and internal environment on the functioning of the energy market; to identify and conceptualize the main fundamental provisions that determine the principles of development of the energy market in Ukraine.

Presentation of the main material of the study with a full justification of the obtained scientific results. The term "principle" is used in a wide variety of areas of human activity. The use of each term has its own context, and its correct understanding and application is the key to a constructive conclusion and avoidance of conflict situations, because sometimes, using the same word, different things are meant. The Academic Explanatory Dictionary of the Ukrainian Language gives the following definitions of the word "principle" (Latin principium – beginning, basis):

- the main starting point of any scientific system, theory, ideological trend, etc.; the basic law of any exact science;

- a feature underlying the creation or implementation of something, a way of creating or implementing something; a rule underlying the activities of an organization, society, etc;

- belief, norm, rule that guides someone in life and behavior [11].

Thus, the generally accepted equivalent of the word "principle" is "source", "beginning", "basis", "rule of behavior", "norm of behavior", "belief". Thus, the principle can be characterized as an established objective regularity of development, activity, on the basis of which there is an appropriate parity of relations between subjects within the requirements of the current legislation.

The war in Ukraine has led to radical changes in energy markets around the world, as Russia, which before the full-scale invasion was the first largest exporter of

natural gas and the second largest exporter of oil, was subject to sanctions, which in turn affected European countries that are most dependent on Russian energy supplies: natural gas, oil, petroleum products and coal. Ukraine joined the European network of electricity transmission system operators. In the context of such changes, European countries have directed their research towards abandoning the consumption of fossil energy sources and switching to renewable energy: by 2050, the whole of Europe, including Ukraine, will become carbon neutral. Another important component of the future European energy market will be hydrogen. Such changes will require significant investments in the development of new infrastructure, development and implementation of technologies, and logistics. Given the integration of the Ukrainian electricity, natural gas, oil, and petroleum products markets into the European energy markets, we will see similar development trends, i.e., a complete rethinking of many of the basic provisions that define the principles of the energy market. As stated in the EU Directive 2018/2001 on the promotion of the use of energy from renewable sources, alternative energy policies should be stable, predictable and avoid frequent or retroactive changes [12]. The Cabinet of Ministers of Ukraine, upon the submission of the Ministry of Energy, approved the Energy Strategy of Ukraine until 2050, which reflects the goals of the European Green Deal and is based on the principles of an integrated approach to the formation and implementation of energy policy, creating conditions for sustainable development of the Ukrainian economy. The relevant goals will be achieved through the development of modern and safe nuclear generation, renewable energy sources, modernization and automation of transmission and distribution systems [13].

The Strategy takes into account:

- the consequences of the full-scale war of the Russian Federation against Ukraine, strengthening the role of energy security and enhancing the resilience of the energy system;

- the results of the IPS of Ukraine's accession to the European Network of Transmission System Operators for Electricity (ENTSO-E) and deepening the integration of Ukraine's energy system into the European one;

- availability of the latest technologies (in particular, production and use of hydrogen for energy purposes, small modular nuclear reactors, energy storage facilities, etc.), technical changes in the energy sector, global trends and innovative solutions, environmental safety requirements in accordance with EU standards and Ukraine's commitments;

- Ukraine's international commitments on energy efficiency and use of renewable energy sources, reduction of greenhouse gas emissions, etc;

- decentralization of electricity generation throughout the country to improve the sustainability and reliability of energy supply [13].

Given the extent of the damage to Ukraine's energy infrastructure and logistical problems, the reconstruction process will be deep and costly. To fully implement market economy mechanisms, it is necessary to define stable and effective "rules of the game" that will be enshrined in the relevant regulatory legal acts. These trends in the legal regulation of alternative energy also indicate the need for further reform of energy legislation and increase of its protection in order to ensure the stability of operation and restructuring of the energy system of Ukraine in accordance with the principles and principles of organization of energy markets in the EU.

A market economy is a system of economic rights and relations related to the exchange of goods and services, which result in the formation of demand, supply, and price. It is based on the principles of:

- free enterprise,

- diversity of ownership of the means of production,

- market pricing,

- contractual relations between business entities,

- limited state intervention in economic activity [14].

Adherence to these principles is a key point in the organization of the energy market in Ukraine and the world.

Given that Ukraine is in the process of establishing a legal sovereign democratic state integrated into the global political and economic system, there is a lag in the development of the relevant legal framework, which leads to gaps in the legislation regulating certain social relations, in particular, relations arising from the

formation of the energy market, which requires a perfect methodological framework on which to develop legislation. The energy market should contribute to the country's energy security, limit monopoly, provide free access to the market and equality of all participants, create conditions for fair competition and rational use of energy resources. For the functioning and development of the energy market in Ukraine, global principles should be taken into account.

The trend of global energy markets is characterized by demonopolization and deregulation. For some time now, the modern world order has been characterized by the rapid development of globalization processes aimed at achieving a safe, stable, predictable state of the economy and society of all countries of the world. Reliable energy supply plays a strategically important role in these processes [3].

V. Mazurenko identifies the following characteristics of the main trends in the global energy market in the context of globalization:

1. The phenomena occurring in the oil market are a manifestation of the general patterns of development of a market economy, and therefore its development is an objective process that depends on the state of market conditions, which, in turn, requires constant research of the main market elements that are common to the elements of other types of markets.

2. Different levels of socio-economic development of individual countries of the world determine different intensities of consumption of oil and oil products.

3. The slowdown in the global economy and the decline in primary energy consumption predetermine a decrease in the overall growth of oil consumption in the world.

4. The monopolistic nature of the development of this market, which was formed as a result of objective and subjective factors, including: heterogeneity of oil fields, formation of powerful global organizations acting in the interests of oil producers or the world community as a whole.

5. Increased contradictions between the main market players with different political, economic and other interests, and at the same time, a high degree of influence of a complex of various risks on the functioning of this market.

6. The world market is not monolithic, it develops fragmented in terms of individual regions of the world.

7. Dynamic development of innovations and new technologies in the field of extraction of unconventional energy resources, in particular shale oil extraction technologies in the United States (the so-called shale revolution) and the increasing role of alternative energy sources, leads to changes in the structure of energy supply in general, which affects the volume and structure of supply and demand in the oil market;

8. Formation of international policy to combat global climate change and implementation by governments of international commitments in the field of low-carbon development, which reduces oil consumption and dependence of countries on its supply, etc.

Social relations, legal and economic laws dictate certain conditions, only under which a business entity will be able to operate efficiently and be competitive [16, p. 19], and these conditions should be the basis of the principles of management.

We agree with the opinion of A. Kolosov that in the post-war recovery of the country's economy, it will be useful to review, and, if appropriate, improve, change, and even abandon those pre-war forms of organization of activities that proved to be ineffective. In particular, the question of what organizational and economic forms should be used to restore and develop the energy complex of Ukraine, which has shown perhaps the best ability to function even in war conditions, needs to be carefully studied [17, p.337].

A common feature of Ukraine's energy markets is the duality of the market - both on the supply side (domestic production and imports) and on the demand side (households, budget organizations, utilities on the one hand, and corporations on the other). This results in a dual price system, the so-called "cross-subsidies", which prevents price signals from manifesting themselves in the directions of stimulating constraints (energy efficiency) and structural changes in both supply and demand. Regulatory functions are actually reduced to setting a certain price level for a certain market segment instead of controlling excess profits from abuse of monopoly position or unfair competition [18, p. 118]. In a market economy, state regulation is

carried out on the basis of the logic of managing the socio-economic development of the country. The development of effective mechanisms for implementing the target areas of the new energy policy is an extremely relevant area of research that goes far beyond the energy sector. In the world practice, there are no standardized and unified approaches to the formation of national energy policy, although usually the state policy is aimed at regulating the national energy market [19]. Such regulation should have only an indirect impact on the participants of the domestic energy market in order to ensure national security and socio-economic development of the country in the environment of harmonization of its priorities with the European ones.

The functioning of the energy market in Ukraine is influenced by macroeconomic, social, environmental, technological, resource, innovation, infrastructure and other areas of interaction. The process of digitalization of energy generation, management, and settlements between market participants plays an important role in the development of the energy market. Digital technologies and the created digital space in the energy sector are essential attributes of leadership in the energy market.

Clean technologies in the energy sector have become the preferred option for consumers around the world, initially due to policy measures, but eventually because they are simply the most cost-effective. In most regions, solar and wind power is already the cheapest available source of new electricity generation [20].

The ideas inherent in the theory of the market and market relations and the specifics of the energy industry serve as heuristic principles for understanding the energy market.

The global experience of the energy market shows that regardless of the specific structure of the market, the principles of its formation should meet the general requirements:

- hierarchical principle of technological management and economic coordination;

- maintaining a single energy space and operational dispatch control system;

- ensuring conditions for "transparent" market functioning and fair competition between market participants;

- application of antimonopoly legislation measures to market participants that are natural monopolists;

- suitability of structural transformations in the energy sector [21, 22].

Signed in 1991, the European Energy Charter defines the main directions of regulation of cooperation in the global energy market. Specifically, it states that it should be open, competitive, non-discriminatory, and should ensure compliance with the principles of international law, long-term energy cooperation between sovereign states based on mutual assistance, professional access to energy resources, stability of development and coordination of actions to ensure environmental protection, energy efficiency, and nuclear safety. These provisions should be taken into account when formulating the principles of development of the Ukrainian energy market in the context of a full-fledged participant in the global energy market. The principles underlying the functioning of Ukraine's energy market should ensure long-term economic stability, use of energy resources with a view to future generations, preservation of climate conditions, and transition to clean energy sources in harmony with nature.

Conclusions from this study and prospects for further exploration in this direction. Therefore, the principles of functioning and development of the energy market in Ukraine should create a framework that would ensure

- proper culture of energy consumption, energy efficiency and energy saving;
- introduction of renewable energy sources;
- reliability of the energy supply system and energy consumption;
- environmental friendliness
- innovation;
- market openness and transparency;
- normalization of the tariff and compensation component of social policy;
- synergy of energy and economic development.

Understanding the requirements of the external and internal environment for the functioning and development of the energy market in Ukraine and the world, as the guiding principles that determine the framework, nature and direction of the energy sector, makes it possible to formulate "rules of the game" that will ensure

optimal conditions for the functioning and stimulate the development of all market participants in the context of macro- and meso-environmental factors.

Література

1. Договір до Енергетичної Хартії та Заключний акт до неї від 06.02.1998 р. URL: https://zakon.rada.gov.ua/laws/ show/995_056#Text. (дата звернення: 01.06.2023).
2. Договір про заснування Енергетичного співтовариства. URL: http://zakon3.rada.gov.ua/laws/show/994_926/print. (дата звернення: 01.06.2023).
3. Офіційний сайт міністерства енергетики України. URL: https://mev.gov.ua/. (дата звернення: 02.06.2023).
4. OPEC Annual Statistical Bulletin 2017. URL: http://www.opec.org/opec_web/static_files_project/media/downloads/publications/ASB2017_13062017. pdf. (дата звернення: 01.06.2023).
5. Блінов І. В. Теоретичні та практичні засади функціонування конкурентного ринку електроенергії: монографія. К. : Наукова Думка, 2015. 250 с.
6. Скловська Є. Г., Сердюк Б. М., Бахмачук С. В., Шевченко Т. Є. Економіка енергетики: підручник. К. : Каравела, 2019. 492 с.
7. Іванов Г. А. Побудова імітаційної моделі лібералізованого ринку електричної енергії з урахуванням особливостей функціонування ОЕС України : дис. ... канд. тех. наук : 05.14.01. Київ, 2021. 191 с.
8. Ткаченко А. М., Бугрім О. Ю., Данько А. А. Енергоринок України: управління та тенденції розвитку. *Вісник Хмельницького національного університету*. 2021. № 6. Том 1. С. 241-248. URL: http://journals.khnu.km.ua/vestnik/wp-content/uploads/2022/01/en-2021-6t1-40.pdf. (дата звернення: 01.06.2023).
9. Білявський М. Дефекти енергоринку, як виклик національній безпеці. *Разумков центр*. 22 квітня 2021. URL: https://razumkov.org.ua/statti/defekty-energorynku-iak-vyklyk-natsionalnii-bezpetsi. (дата звернення: 01.06.2023).

10. Річні звіти про управління АТ «Оператор ринку». URL: https://www.oree.com.ua/index.php/web/1005. (дата звернення: 03.06.2023).

11. Словник української мови: в 11 томах. Том 7, 1976. С. 693.

12. Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast). *Official Journal of the European Union.* 2018. L 328. P. 82-209. URL: https: //eurlex.europa.eu/legalcontent/EN/TXT/?uri=uriserv: OJ. L_ 2018.328.01.0082.01. ENG. (дата звернення: 02.06.2023).

13. Україна – енергетичний хаб Європи. Уряд схвалив Енергетичну стратегію до 2050 року. URL: mev.gov.ua/novyna/ukrayina-enerhetychnyy-khab-yevropy-uryad-skhvalyv-enerhetychnu-stratehiyu-do-2050-roku. (дата звернення: 03.06.2023).

14. Гвасалія Д.С. Соціальна функція держави та її складові. *Економіка і регіони*. 2011. №2(29). С. 42-46.

15. Мазуренко В. П., Шапран О. С. Розвиток світового ринку нафтопродуктів в умовах глобалізації. URL: http://jrnl.nau.edu.ua/index.php/SR/article/view/7099/7944. (дата звернення: 01.06.2023).

16. Козачук М. О. Свобода підприємницької діяльності та її обмеження в законодавстві України : дис. ... канд. юрид. наук : 12.00.04. Харків, 2011. 256 с.

17. Організаційно-економічні аспекти розвитку підприємницьких структур в Україні та світі : моногр. / за заг. ред. д-ра екон. наук, проф. Т. Гринько. – Дніпро : Видавець Біла К. О., 2022. – 400 с.

18. Лір В. Е. Енергонезалежність України: досягнення та перспективи. *Економіка і прогнозування*. 2016. № 2. С. 110-131. URL: http://nbuv.gov.ua/UJRN/econprog_2016_2_9. (дата звернення: 01.06.2023).

19. Геєць В. М. Розвиток та взаємодія економічної та енергетичної політики в Україні (стенограма наукової доповіді на засіданні Президії НАН України 16 грудня 2015 р.). *Вісник Національної академії наук України.* 2016. №

2. С. 46-53. URL: http://nbuv.gov.ua/UJRN/vnanu_2016_2_10. (дата звернення: 04.06.2023).

20. World Energy Outlook 2021. URL: https://www.iea.org/reports/world-energy-outlook-2021/. (дата звернення: 02.06.2023).

21. Замулко А. І. Енергоринок та тарифна політика України у сфері електроенергетики / А. І. Замулко, Є. М. Іншеков, В. Ф. Находов [та ін.] // Управління енерговикористанням: зб. доп. / За заг. ред. д.т.н., проф. А. В. Праховника. К. Альянс за збереження енергії, 2001, С. 242-364.

22. Мельник Л. Г., Карінцева О. І., Сотник І. М. Економіка енергетики: навчальний посібник. Суми : ВТД «Університетська книга», 2006. 238 с.

References

1. The Verkhovna Rada of Ukraine (2023), The Agreement “Agreement on the Energy Charter and its Final Act dated February 6, 1998”, available at: https://zakon.rada.gov.ua/laws/show/995_056#Text. (Accessed June 01, 2023).

2. The Verkhovna Rada of Ukraine (2011), The Agreement “Agreement on the establishment of the Energy Community” available at: http://zakon3.rada.gov.ua/laws/show/994_926/print. (Accessed June 01, 2023).

3. Official website of the Ministry of Energy of Ukraine (2023), “History of Ukrainian energy system” available at: https://mev.gov.ua/. (Accessed June 02, 2023).

4. Official website of OPEC (2018), “Annual Statistical Bulletin 2017”, available at: http://www.opec.org/opec_web/static_files_project/media/downloads/publications/ASB2017_13062017. pdf (Accessed June 01, 2023).

5. Blinov, I. V. (2015), Teoretychni ta praktychni zasady funktsionuvannia konkurentnoho rynku elektroenerhii [Theoretical and practical principles of the functioning of the competitive electricity market], Naukova Dumka, Kyiv, Ukraine.

6. Sklovska, Ye. H., Serdiuk, B. M., Bakhmachuk, S. V. and Shevchenko, T. Ye. (2019), Ekonomika enerhetyky [Energy economics], Karavela, Kyiv, Ukraine.

7. Ivanov, H. A. (2021), “Construction of a simulation model of the

liberalized electricity market taking into account the peculiarities of the operation of the UES of Ukraine", Abstract of Ph.D. dissertation, Energy systems and complexes, Ihor Sikorsky Kyiv Polytechnic Institute, Kyiv, Ukraine.

8. Tkachenko, A. M., Buhrim, O. Yu. and Danko, A. A. (2021), "Energorynok of Ukraine: management and development trends", *Visnyk Khmelnytskoho natsionalnoho universytetu*, vol. 6(1), pp. 241-248, available at: http://journals.khnu.km.ua/vestnik/wp-content/uploads/2022/01/en-2021-6t1-40.pdf. (Accessed June 01, 2023).

9. Biliavskyi, M. (2021), "Energy market defects as a challenge to national security", *Razumkov tsentr*, available at: https://razumkov.org.ua/statti/defekty-energorynku-iak-vyklyk-natsionalnii-bezpetsi. (Accessed June 01, 2023).

10. Official website of the JSC "Market Operator" (2022) , "Annual reports on the management of JSC "Market Operator", available at: https://www.oree.com.ua/index.php/web/1005. (Accessed June 03, 2023).

11. Bilodid, I. K. (1976), Slovnyk ukrains'koi movy: v 11 tomakh [Dictionary of the Ukrainian language: in 11 volumes], Volume 7, Naukova dumka, Kyiv, Ukraine.

12. European Union (2018), "Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast)", *Official Journal of the European Union*, vol. 328, pp. 82-209, available at: https://eurlex.europa.eu/legalcontent/EN/TXT/?uri=uriserv:OJ.L_2018.328.01.0082.01.ENG. (Accessed June 02, 2023).

13. Official website of the Ministry of Energy of Ukraine (2020), "Ukraine is the energy hub of Europe. The government approved the Energy Strategy until 2050". available at: mev.gov.ua/novyna/ukrayina-enerhetychnyy-khab-yevropy-uryad-skhvalyv-enerhetychnu-stratehiyu-do-2050-roku. (Accessed June 03, 2023).

14. Hvasaliia, D.S. (2011), "The social function of the state and its components", *Ekonomika i rehiony*, vol. 2(29), pp. 42-46.

15. Mazurenko, V. P. and Shapran, O. S. (2013), "Development of the world market of petroleum products in conditions of globalization", available at:

http://jrnl.nau.edu.ua/index.php/SR/article/view/7099/7944. (Accessed June 01, 2023).

16. Kozachuk, M. O. (2011), "Freedom of entrepreneurial activity and its limitations in the legislation of Ukraine", Abstract of Ph.D. dissertation, Economic law, economic and procedural law, Kharkiv, Ukraine.

17. Hrynko, T. (2022), Orhanizatsiino-ekonomichni aspekty rozvytku pidpryiemnytskykh struktur v Ukraini ta sviti [Organizational and economic aspects of the development of business structures in Ukraine and the world], Vydavets Bila K. O., Dnipro, Ukraine.

18. Lir, V. E. (2016), "Energy independence of Ukraine: achievements and prospects", *Ekonomika i prohnozuvannia*, vol. 6(1), pp. 110-131, available at: http://nbuv.gov.ua/UJRN/econprog_2016_2_9. (Accessed June 01, 2023).

19. Heiets, V. M. (2016), "Development and interaction of economic and energy policy in Ukraine (transcript of a scientific report at a meeting of the Presidium of the National Academy of Sciences of Ukraine on December 16, 2015)", *Visnyk Natsionalnoi akademii nauk Ukrainy*, vol. 2, pp. 46-53, available at: http://nbuv.gov.ua/UJRN/vnanu_2016_2_10. (Accessed June 04, 2023).

20. Official website of Internationai Energy Agancy (2022), "World Energy Outlook 2021", available at: https://www.iea.org/reports/world-energy-outlook-2021/. (Accessed June 02, 2023).

21. Zamulko, A. I. (2001), Enerhorynok ta taryfna polityka Ukrainy u sferi elektroenerhetyky [Energy and tariff policy of Ukraine in the field of electric power], Alliance for Energy Conservation, Kyiv, Ukraine.

22. Melnyk, L. H., Karintseva, O. I. and Sotnyk, I. M. (2006), Ekonomika enerhetyky [Energy economics], VTD «Universytetska knyha», Sumy, Ukraine.

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