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PECULIARITIES OF THE TRANSFORMATION OF THE ENERGY MARKET OF UKRAINE IN THE CONTEXT OF EUROPEAN INTEGRATION

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Abstract

The article reveals the concept of the energy market, the principles of its organization, the role of market participants; the experience of the formation and functioning of the energy markets of Western Europe and Ukraine was analyzed; the essence of the system of contractual relations in the wholesale electricity market was investigated; the essence of legislative regulation of the energy industry in Ukraine is revealed; the main types of abuses on the wholesale energy markets are highlighted; the main trends of market transformations in the field of energy are analyzed.

Keywords: energy market, energy, competition, energy market participants, principles of energy market organization, energy efficiency, contractual relations.

In the 21st century, the latest technologies are the cause of significant changes in the structure of distribution and consumption of energy resources. Most of the world's countries strive to reduce domestic energy consumption by actively using local traditional and renewable fuels.

The energy factor significantly affects international relations, the world economy and geopolitics, especially in the context of globalization. This emphasizes the importance of adequately assessing the prospects of fuel and energy resources and developing strategies for the development of both the energy sector and the economy. Trends in the global energy market play a key role in forecasting and planning the economic development of countries.

Global energy markets are changing rapidly, accompanied by volatility in hydrocarbon prices, slowing demand growth and intensifying competition. Technological progress opens up new opportunities in the production, transportation and consumption of energy, strengthens competition between fuels, changes approaches to regulation of energy markets and diversifies the use of energy resources. Major market participants are reviewing their strategies. In this context, long-term forecasts and trends in the development of the world energy market become extremely important for the world economy, national economies of countries, as well as for consumers, producers, investors and politicians.

The Russian military invasion of Ukraine in 2022 intensified the struggle for oil refining resources. European refineries have long struggled as major oil companies shut them down in an effort to achieve zero emissions and the threat of electric cars. However, with the

war in Ukraine and tensions in the Red Sea, energy analysts believe the refining industry could become profitable thanks to rising margins on products such as diesel and gasoline. This margin could increase further if there are further supply disruptions in Europe.

Europe is now more dependent on oil imports, making it vulnerable to disruptions such as attacks on shipping in the Red Sea. Many Asian suppliers choose the longer route through southern Africa [1].

The energy market is a collection of all entities that exchange energy carriers (electricity, gas, oil, etc.) on open or closed trading platforms. This market includes producers, suppliers, consumers and other participants involved in the production, transportation, distribution and consumption of energy.

The main participants of the energy market include:

1. Energy producers are enterprises that produce electricity, gas, oil and other types of energy. They can be public or private companies that own and operate energy facilities such as power plants, oil wells, etc.

2. Energy suppliers are companies that provide energy to consumers. They can be integrated companies involved in both production and supply, or specialized suppliers.

3. Transmission networks are enterprises that own and operate energy transmission networks, such as electric networks, gas pipelines, etc. They provide energy transportation from producers to consumers.

4. Consumers are enterprises, organizations and households that use energy for production, heating, lighting and other needs.

5. Regulators and state administration bodies are government bodies that establish rules and standards

for the functioning of the energy market, monitor compliance with legislation, issue licenses and regulate energy prices.

The principles of energy market organization may vary depending on the country and market type. Among the main principles, it is worth highlighting:

- Competition – ensuring free access to the market for all participants and creating conditions for competition between energy suppliers to ensure the effective functioning of the market.
- Transparency – ensuring openness and transparency in market management, including access to information on prices, contract terms, volumes and other aspects of market activity.
- Regulation – the presence of a regulatory body that controls the operation of the market, sets rules and standards, grants licenses and ensures compliance with legislation.
- Integration – ensuring cooperation and integration between different energy sectors (electricity, gas, oil, etc.) to optimize the use of resources and support the stability of the energy market.

These principles help create an efficient and stable energy market system that ensures reliable energy supply, competitive prices and stimulates innovation and development in the energy sector.

The structure of the world energy market is becoming more and more diversified every year. The total amount of primary energy consumption in the world continues to grow. In the twentieth century, the consumption of energy resources in society increased more than thirteen times.

The summer of 2023 was marked by significant legislative changes in the energy sector of Ukraine, when the parliament adopted two key laws aimed at bringing the Ukrainian energy market closer to the European one and introducing new tools for the development of renewable energy.

On July 2, 2023, the Law of Ukraine "On Amendments to Certain Laws of Ukraine on Prevention of Abuse in Wholesale Energy Markets" No 3141-IX (known as the REMIT Law) entered into force. This law is aimed at the implementation of Regulation (EC) No 1227/2011 of October 25, 2011, adapted by the Energy Community, regarding the integrity and transparency of the wholesale energy market, it allows the implementation of Ukraine's European integration obligations.

The REMIT Law implements the main principles of the European energy market in Ukraine, such as integrity and transparency in energy markets, tools to prevent abuses in the electricity and gas markets, as well as liability for such abuses.

Abuses in wholesale energy markets include:

- violation of requirements regarding the disclosure and use of insider information;
- manipulation and manipulation attempts;
- carrying out transactions with wholesale energy products without registration as a participant of the wholesale energy market [2].

The construction and functioning of energy markets in Western Europe and Ukraine have their differences due to differences in political, economic and institutional conditions.

Experience of Western Europe:

- Market liberalization and integration – Western European countries have been actively liberalizing their energy markets for more than a decade and are working on their integration. For example, the European Union is directing efforts to create a Single Energy Market, which aims to ensure a competitive, safe and secure energy market.

- Development of renewable energy sources - many countries of Western Europe are actively developing renewable energy sources and implementing various incentive programs and initiatives to increase the share of renewable sources in the energy mix.

- Energy efficiency – Western Europe pays significant attention to energy efficiency issues, implementing programs and measures to improve energy efficiency in all areas, including industry, construction and transport. Experience of Ukraine:

- Liberalization of markets – Ukraine has also gone through the process of liberalizing its energy market, but in general this process is not yet complete. Ukraine is working on the implementation of the directives of the European Union regarding the liberalization of the energy market and preparation for integration into the European energy community.

- Development of renewable energy sources - Ukraine is also actively developing renewable energy sources, especially solar and wind energy. The state implements incentive programs and legislative initiatives to attract investment in this sector.

- Energy efficiency – energy efficiency remains one of the priorities of Ukraine's energy policy. The country is taking measures to improve energy efficiency in construction, industry and utilities.

Ukraine can take as a model the countries of Western Europe in terms of building a competitive and sustainable energy market, using their experience in market liberalization, development of renewable energy sources and increasing energy efficiency.

The energy industry in Ukraine and the world is in constant motion, adapting to internal and external challenges. In recent years, Ukraine has actively worked on diversifying energy sources, developing renewable sources, reducing dependence on imported energy resources, especially gas, and improving energy efficiency. At the same time, the conflict with Russia created serious challenges for the country, because Russian pressure attempts through the destruction of the energy infrastructure became one of the main tools of the aggressor. The military invasion caused damage to the energy infrastructure and unstable energy supply in 2022-2023.

In 2023, the global energy industry is facing significant changes and challenges. On the one hand, there is growing interest in renewable energy sources, and on the other hand, there are ongoing discussions about traditional sources such as oil and natural gas. Experts note the increase in investments in clean energy, the digital transformation of the energy sector, as well as

the impact of geopolitical and economic factors on the global energy market. The impact of global economic conditions, the growth of electricity production from renewable sources and the tendency to reduce dependence on fossil fuels are key factors shaping future energy strategies [3].

In the wholesale electricity market, there are various systems of contractual relations that regulate the interaction between market participants, consumers and producers of electricity. The main systems of contractual relations in the wholesale electricity market include:

- Power Purchase Agreement (PPA) is a contract between a producer of electricity and a buyer (usually a distributor or supplier) that determines the terms of electricity supply for a certain period at a fixed price or subject to price indexation.
- Spot and forward contracts. Spot contracts establish an agreement to buy or sell electricity at current market prices. Forward contracts allow the parties to fix the price of electricity for the future period.
- Contracts with a difference (Difference Contracts) - these contracts allow the parties to equalize the difference between the actual amount of electricity produced or consumed and the amount specified in the contract.
- Balancing Services Agreement (BSA) – these agreements are concluded between producers and the system operator of the energy system to ensure the stability of the energy system and equalize the difference between planned and actual electricity consumption.
- Agreements on the use of transit networks (Transmission Use Agreements) - these agreements are concluded between producers and owners of transit networks (transmitters) for the transportation of electricity from the place of production to the place of consumption.
- Agreements for the provision of balancing services (Balancing Services Agreements) - these agreements are concluded between the parties to ensure a balance between the demand and supply of electricity on the market.

The specified systems of contractual relations regulate the interaction between the participants of the wholesale electricity market and help to ensure the stability and efficiency of the functioning of the energy market.

Modern world energy has a clearly expressed "carbon orientation": the burning of fuel and energy resources leads to significant emissions of greenhouse gases into the atmosphere, which causes climate warming.

To combat global warming, five main measures are proposed to significantly reduce CO₂ emissions in the future:

- 1) Refusing to use coal and investing in renewable energy;
- 2) Transition of transport to alternative types of fuel;
- 3) Decarbonization of industrial production;
- 4) Increasing energy efficiency;
- 5) Providing electricity to the 3.5 billion people who currently do not have access to it.

Thus, most forecasts for the development of world energy are focused on the transition from carbon energy to carbon-free energy, primarily based on renewable energy sources and nuclear energy [4].

Conclusions. Changes in the energy sector are an important step towards the implementation of European principles of the functioning of energy markets, increasing the transparency and integrity of their participants. They also reflect Ukraine's desire to provide a balanced approach to stimulating the development of renewable energy sources, focusing on market principles. However, from the point of view of Ukrainian energy market participants, the new regulation becomes more complex and requires less dependence on state support for development planning.

The new changes also indicate the integration of Ukraine into the global trend of decentralization of energy generation, giving consumers an active role in energy markets, which allows them to actively influence the balance of supply and demand and, as a result, reduce costs for energy resources.

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