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DEVELOPMENT PROSPECTS OF THE ENERGY POLICY OF UKRAINE IN THE CONTEXT OF EUROPEAN INTEGRATION

The paper provides the comprehensive review of the current energy policy of Ukraine. The driving forces and prospects for energy markets, as well as ways for Ukraine's broader energy transition in the context of European integration are outlined. The potential of the country to realize the transit potential, increase energy exports in conjunction with industrial production and strengthening the role of Ukraine in the system of international economic relations is reflected.

Key words: *energy policy, European integration, energy resources, renewable energy sources, natural gas, electricity, sustainable development, energy security, energy markets, security of supply.*

Моргунова Е.С. Перспективи розвитку енергетичної політики України в контексті європейської інтеграції.

Представлено комплексний огляд поточної енергетичної політикиУкраїни. Окреслено рушійні сили та перспективи енергетичних ринків, а також шляхи ширшого енергетичного переходу України в контексті європейської інтеграції. Відображено потенціал країни щодо реалізації транзитного потенціалу, збільшення експорту енергоносіїв разом із промисловим виробництвом, у тому числі посилення ролі України в системі міжнародних економічних відносин.

Ключові слова*:енергетична політика,європейська інтеграція, енергетичні ресурси, відновлювані джерела енергії, природний газ, електроенергія, сталий розвиток, енергетична безпека, енергетичні ринки, безпека постачання.*

The politics of energy is reemerging as a major domain of research for political science. The dependence of modern societies on a steady, reliable and affordable energy supply owns to political difficulties and reactions, both domestically and internationally.

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When analyzing the pitfalls of the energy policy of Ukraine, it should be taken into account that the transformation of the state's energy complex has been taking place in difficult political and economic conditions since the early 1990s. The collapse of the Soviet Union had a profound effect on Ukrainian energy. The patterns for production, supply and consumption were reshaped by political and economic turmoil. With population decline cutting overall demand, and heavy regulation affecting energy efficiency due to outdated technologies (despite recent improvements), Ukraine remains one of the most intensive economies globally that consumes three times more than the OECD average per unit GDP as it is still heavily dependent on coal power plants [1].

Against the background of a significant decline in GDP (in the period from 1990 to 2000, the fall in GDP was over 60%), a political consensus was not reached in the country on maintaining the state's course towards market transformations of the economy. The consensus emerged only in the early 2000s with the onset of economic growth. Thereupon, economic transformation has been extremely slow and inconsistent. The structure of Ukraine's fuel and energy complex that existed at that time was unable to adapt to new economic conditions.

For a long time, the formation of Ukraine's energy policy has been carried out under political forces' influence. These groups blocked transition models in organizing markets for fuel and other related topics as well as state-owned companies activities in areas like gas or coal industries, no matter what their organizational form is. The consequence of this was the monopolization of energy markets along with a high concentration in capital management. This led to an increase in supply cost, debt of energy market entities, and deterioration in the technical condition of the sector's fixed assets.

Speaking of energy consumption, Ukraine is still highly dependent on energy imports. The country receives about 45% of the energy it needs from abroad, which is why nearly 17% of all Ukrainian imports come from the energy sector in particular. A look at the primary consumption data among all types of energy sources reveals that regenerative energies account for only a tiny percentage (approximately 3%), which tends to decrease even more. By way of contrast, most of the primary energy consumption is covered by natural gas (36%) and coal (26%), followed by oil (18%) and nuclear energy (17%) [2].

Regional features of the formation of the structure of energy consumption limit the possibilities of optimizing the energy balance of Ukraine. In particular, the use of coal as a base fuel for thermal power plants in most regions of the country generates a number of threats to energy security in the short and long term such as: unmet needs due to domestic resources; non-compliance of environmental indicators of the energy and industrial sectors of the economy with the requirements of the EU decarbonisation policy in accordance with the implementation of Ukraine's European integration aspirations. The predominant use of gas or oil in other regions of Ukraine causes the energy dependence of the economy on the external energy market, which is under the influence of constant geopolitical changes [3].

The Ukrainian economy is energy-intensive, with a structural imbalance of power. Its structural features, including the dominance of raw materials, the lack of a domestic market and the large scale of the fuel and energy complex, these are the major problems of the country's economic model, which significantly distinguish its economy from the economies of other post-socialist countries. The lack of baseline prerequisites for long-term and high-quality economic growth in Ukraine and, consequently, a pro-cyclical model of economic development rendered the effective transformations in the energy sector impossible. In such a setting, the strategic orientation of energy policy lost its role, because its target parameters could not be achieved. Wherefore, some strategic legislative and regulatory acts have been proved ineffective.

De facto, crisis situations in the energy sector have accompanied the development of the Ukrainian economy since independence. Their emergence is associated with both internal problems in the country and the influence of geopolitical factors. Yet, with adversity comes opportunity. The change in the geopolitical situation is nothing but an impetus for fundamental reforms, since it creates favorable conditions for the development of the energy sector and diversification of cooperation in the energy market.

Minimizing risks associated with a possible deepening of the energy crisis due to hostilities in eastern Ukraine, blocking coal supplies from the occupied areas of Donetsk and Luhansk regions, high energy intensity of industrial production and insufficiently transparent tariff policy in the face of weakening support from the European Union and international financial organizations, is possible only on the basis of a

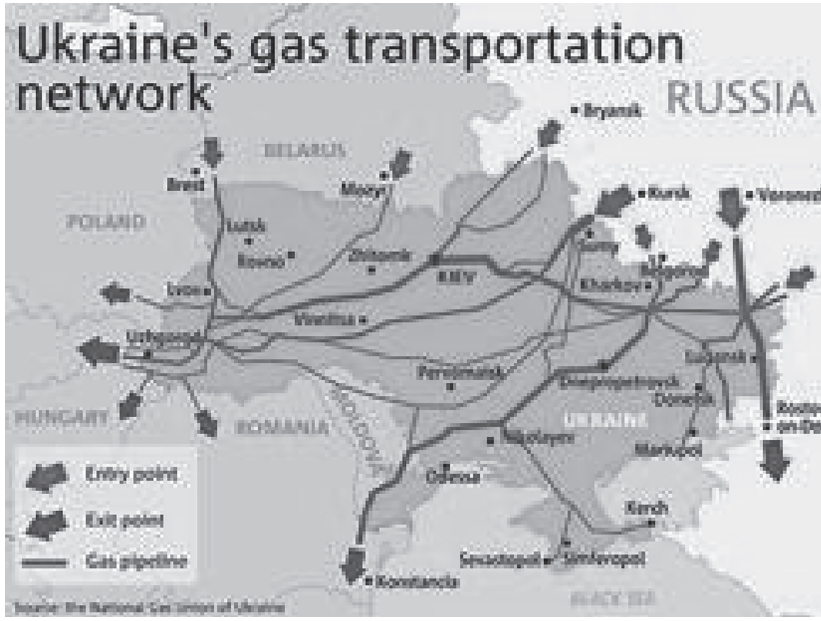
systemic reform of the country's energy sector. The energy strategy of Ukraine should provide for the development of market relations and the creation of an institutional environment that allows competition between economic entities, as well as diversifying energy supply sources, deepening its cooperation with the EU.

Nonetheless, the development of an effective energy policy is a daunting endeavor in methodological sense. Ukraine's energy policy should reflect not only what it deems to be priorities, but also respond to current challenges and threats as well as offer mechanisms for solving specific problems effectively. It's substantiation should be based on forecasts of the country's economic trends and understanding its future model, taking into account the issues that are key within the global energy system. An important part of this process is ensuring rational integration with other economic policies so they can be run smoothly in a complementary way without hindering each other or working against one another instead.

Given the bloc's interest in further expanding its strategic energy partnership and dialogue with other countries, Ukraine can use this mechanism to strengthen its status as a reliable partner of the EU, while ensuring its interests both in achieving its own energy independence and in energy diplomacy. One of the significant indicators by which the EU determines Ukraine's readiness to be a reliable partner for the EU's energy supply is the effectiveness of the implementation of European legislation, in particular the EU energy directives aimed at ensuring energy security and creating a transparent and stable EU energy market.

That said, the energy sector of Ukraine is a complex and ramified system of industries that ensure the production, transmission and distribution of fuel and energy resources among diverse subjects of economic relations. It depicts the country's tremendous possibilities for the implementation of transit potential, increasing energy exports and industrial production, strengthening Ukraine's role in the system of international economic relations. The country remains a strategic player in energy transit and has access to large reserves of conventional and unconventional hydrocarbons, amounting to approximately 9 billion tons of oil equivalent (Btne) [4; 5].

This includes a chance for Ukraine to strengthen its energy independence by reducing its dependence on gas imports from Russia, which connotes the prospect of greater integration with the



European energy market as an opportunity for Ukraine to liberalise and demonopolize domestic energy markets. From this perspective, the development of the energy industry of Ukraine is a prerequisite for ensuring the competitiveness of the country's economic system, and reinforcing its energy and economic security.

The EU-Ukraine cooperation in the framework post-European liberalization of energy markets

The European Union has made a number of steps to build an interconnected liberalized pan-European gas market and ensure security of supply on the continent. However, the current market situation has exposed Europe's alarming dependence on physical gas flows from the Russian Federation as on the backdrop of soaring global gas prices, Gazprom has limited gas supplies to a number of European states attaching political conditions to terms of supply and choice of gas transportation routes. The issue of hiking energy costs is thus exacerbated by a risk of physical gas deficit driven by political decisions of the Russian leader.

Particularly, the EU's energy dependency rate rose to 61% (2019) from 56% (2000). Today, the EU imports about 53% of the energy it consumes. The EU's energy dependence is most pronounced in the areas of solid fuels, natural gas and oil. Thus, more than 40% of imports to the EU of natural gas and solid fuels in 2019 fell on one supplier – the Russian Federation. The EU's dependence on oil imports stays around 85-88%, a third of which is in Russia. Expenditures on gas and oil purchases under import contracts reach 3% of the European Union's GDP. In fact, the EU pays more than EUR 1 billion per day for its natural resources.

The year of 2021 highlighted the challenge of energy security in both Ukraine and the EU, as global shortages of natural gas drove wholesale prices to record highs. This common challenge provides shared opportunities for dialogue and collaboration.

According to analytical forecasts, Europe's demand for gas imports will grow in the context of abandoning coal and nuclear energy, reaching a peak in 2030, moreover, against the backdrop of a reduction in its own production [6]. The key direction will be gas supplies via sea routes through new and promising LNG terminals. Thus, strengthening the efforts to bring fracking into the global energy system through emissions disclosures can help increase global LNG capacity. As Ukraine and the EU use different approaches to gas purchases, the right balance between long-term contracts that prioritise security of supply and entry into the spot market, which prioritizes price advantages, is a natural area for dialogue after a price shock. Finally, energy security encourages the use of renewable energy sources. However, the latter requires a number of changes in the Ukrainian market structure, where valuable information could be drawn from the European experience.

Principally, cooperation between Ukraine and the EU can be deepened appertaining to the five fundamental dimensions of the European Energy Union: energy security, solidarity and trust, full integration into the European energy market, energy efficiency to manage demand for resources, decarbonization of the economy, innovation and competitiveness [7].

Ukraine has a significant potential for strengthening the bloc's energy security, which is primarily due to the country's European integration intentions. In particular, it might be seen through the prism of the formation of full-fledged competitive common markets for

electricity and gas. Strengthening the energy security of the EU, with the simultaneous integration of Ukraine into the common energy space, the synchronization of energy systems and markets with European ones, will determine the mutually beneficial vector of cooperation between the parties in the field of energy security for the next decades [8].

Given that the EU is interested in further expanding energy cooperation and dialogue with other countries, in the context of a common challenge for the European continent – security of supply, Ukraine can employ this mechanism to strengthen its status as a reliable EU energy partner, while pursuing its own interests in the field of energy diplomacy and security in conjunction with the supply of natural gas, crude oil and petroleum products, electricity, renewable energy sources (RES) and hydrogen in particular [9].

Since the Ukrainian gas transportation system (GTS) is currently the only transit route to the EU that is not controlled by Russia, in the context of gas cooperation, the strengthening of the EU's energy security by building an international consortium to jointly manage the Ukrainian GTS is seen. For the EU, this is an opportunity to gain access to the use of Europe's largest gas storage facilities located in Ukraine, which will positively affect the stabilization of intra-European natural gas prices and, at the expense of gas reserves, increase Europe's energy security.

As a matter of fact, there are also ample opportunities to ramp up domestic gas production in Ukraine, including the development of the Black Sea areas, and the unrealized potential of transshipment of LNG tankers in Ukrainian ports to create backup gas supply routes to the EU, which might further allow for initiating negotiations on a new role of Ukraine as a partner for transit and gas supplies to Europe.

Referring to the potential transshipment of crude oil and petroleum products by virtue of using Ukrainian ports and transit along railway corridors, it might provide new ways to supply the aforementioned commodities to the countries of Southeastern Europe.

A fundamental aspect of interaction in the field of energy security is synchronization with the European network of system operators ENTSO-E, due to which the Ukrainian electricity market mightenhance competitiveness and transparency. The integration of the energy system of Ukraine into the pan-European energy system ENTSO-E is provided for by the Association Agreement between Ukraine and the EU [10].

Particularly, it is assumed that integration with ENTSO-E will have a positive effect on price stabilization in the electricity markets of Ukraine and the EU, ensuring mutual balancing and creating additional reserves to overcome emergency situations with the energy supply of both parties [11]. The surplus of generating capacities in Ukraine will be able to ensure the growth of electricity consumption in neighboring EU countries in the conditions of the functioning of the common market, stabilize the price and demand.

Renewable energy sources occupy a key place in the architecture of the future energy system of the European Union. The EU's plan for green transition revealed in the «Fit for 55» [12] package provides for an increase in the share of renewable energy to at least 40% by 2030. In this context, Ukraine is an integral part of the implementation of the goals of the European Green Deal and the reduction of Europe's anthropogenic impact on climate change. Such a policy is primarily aimed at ensuring energy security and energy independence of the EU, decarbonization and replacement of the use of own and imported fossil fuels with renewable energy sources. The production and supply under direct agreements of green electricity in the EU under the conditions of the common market will not only contribute to the implementation of the goals of decarbonization, but will also ensure the stability and differentiation of sources of electricity supply.

It should be noted that hydrogen is at the forefront of the European Green Deal and the EU's energy transition to a sustainable economy. In this direction, there are plentiful avenues for the Ukraine – EU collaboration in terms of the production and supply of green hydrogen due to the capabilities of the Ukrainian GTS, using the advantages of geographically close location to the borders of the EU countries.

Yet, one of the most significant indicators by which the EU determines Ukraine's readiness to be a reliable partner is the effectiveness of the implementation of European energy legislation, in particular, the EU energy directives aimed at ensuring the security of supplies, in line with the formation of a transparent and stable energy market in Europe. Henceforth, in light of the implementation of the European Green Deal, the EU energy acquis is entering a new stage, which will certainly lead to its extension to partners seeking deeper interaction and integration into the European Union [13].

Policy considerations for improving energy efficiency in Ukraine

Ukraine has great potential to improve energy security and independence from Russian gas supplies, as well as economic growth and energy infrastructure modernization. The development and implementation of an ambitious and comprehensive energy strategy is the first step that the Ukrainian authorities shall take in order to employ the existing potential. Successful implementation of an ambitious energy strategy would strengthen Ukraine in three directions at once – politically, economically and environmentally.

From a political point of view, a tangible reduction in Russian gas imports would have a positive impact on Ukraine's foreign policy capacity. The Russian strategy, in which the supply of natural gas is used as a political weapon, where the reliability of these supplies depends on whether the policy of the recipient country is carried out in the spirit of the Russian Federation, is also used in relation to Ukraine.

Changing Ukraine's energy policy, reducing its consumption of Europe's most important energy source, gas, in particular by increasing energy efficiency and creating incentives to save energy by raising gas prices for consumers with the parallel development of renewable energy could make a decisive contribution to preserving national sovereignty and sovereignty. political independence of Ukraine.

Whereas, from an economic point of view, Kyiv needs to reconsider its energy policy. Burdens on Ukraine's state budget due to high energy consumption and extremely high gas bills from Russia will soon exceed acceptable limits. Energy prices will continue to rise due to rising global energy demand and depletion of fossil fuels. As Ukraine covers its energy demand by almost 40% through imports, which account for most of its export revenues, the tense situation with the state budget will not improve in the near future. In addition, energy subsidies are provided by the state to reduce high energy prices for private households on the one hand and support their purchasing power, and on the other hand to support the competitiveness of domestic industry.

Gas subsidies to private households and some businesses that do not meet any market principles and are not tied to income are extremely costly and do not lead to sustainable development. Ukraine needs to address this issue by highlighting energy efficiency improvements. Thus, raising energy consumer prices to a level that would reflect the real costs of energy suppliers, as the International Monetary Fund

insists, should be a turning point in the implementation of modern energy policy. Only when consumers feel the real cost of energy will it be possible to stop wasting it for a long time. Taking such measures, it is necessary to think about a special program for socially vulnerable members of society, who will not be able to adapt to the sharp jump in energy prices.

Along with improving energy efficiency in industry and the housing sector and raising gas prices to create an incentive to save energy, the development of renewable sources should also be part of the country's revised energy strategy for the long term, which would have a positive effect on Ukraine's economy[14]. The framework conditions for attracting investment, for example, in the solar energy sector in Ukraine, are favorable, as purchase prices under «green tariffs» are relatively high compared to Western European countries [15]. By attracting foreign companies working in the field of renewable energy, it is possible to provide new jobs and economic growth. But the lack of transparency in Ukraine's energy sector and weak legal certainty currently deter foreign investors from taking action in Ukraine. Creating a more transparent and robust framework in the energy sector is, as in other sectors of the economy, an important prerequisite for benefiting from foreign investment.

Last but not least, the development and implementation of an ambitious energy strategy is important for environmental reasons. Lower energy consumption (for example, modernization of power plants or better insulation of residential buildings) will reduce carbon dioxide emissions, and therefore changes in energy policy in Ukraine will have a positive impact on global climate protection. As climate change and related measures are likely to become more important in the future, international commitments to reduce carbon emissions could be an instrument of political and economic pressure on Ukraine. Political pressure should be expected primarily from the European Union, as European emission reduction standards must be met. Thus, the member states of the European Union shall reduce their emissions by 20% by 2020. Economic pressure on Ukraine may arise, for instance, in the context of emissions trading due to the impact of carbon emissions on pricing. Therefore, it is important for Ukraine to set realistic goals in the field of climate protection, which would take into account the potential development of global and European intentions to reduce emissions,

going even deeper than the requirements of the Kyoto Protocol. Therefore, a forward-looking national energy strategy should include specific targets for reducing carbon emissions.

To implement the aforementioned measures, it is therefore essential to bring the ideas of energy efficiency and climate change to the attention of the population and government per se. These topics need to be better presented in the media and educational institutions in order to educate people on energy and climate issues and to make them understand the correlation between energy waste, carbon emissions and climate change. Only in the presence of an understanding of such relationships, i.e. an understanding of the need for certain unpopular measures, can we count on the perception of political decisions in this regard.

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