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ENERGY SECURITY OF UKRAINE

The article analyzes theoretical approaches to understanding the concept of «energy security». The main indicators of the level of energy security of Ukraine are described. The level of supply of energy resources of Ukraine is given. The development of spheres of the fuel and energy complex: gas industry, coal industry, oil industry and electric power industry is analyzed.

The main threats to Ukraine's energy security are defined as: low level of own energy resources availability; excessive dependence on energy imports; insufficient level of energy and technologies diversification of supply sources, high level of energy intensity of production and use of energy resources by municipal services.

The main normative legal documents concerning the energy security of Ukraine are analyzed. The Energy Security Strategy of Ukraine till 2035 is outlined. The state policy instruments for preventing threats to Ukraine's energy security are identified. The main tasks for ensuring energy security of Ukraine are defined: ensuring energy independence; formation of a conscious and energy efficient society; creation of competitive markets for gas, coal, oil and oil products, electricity and competitive conditions for their transportation through the territory of Ukraine; creating conditions for investment attractiveness of the energy sector of Ukraine; integration of gas and electricity markets and relevant transport networks of Ukraine into the energy space; decarbonisation of the energy sector; introduction of an effective system of strategic management in the sectors of the fuel and energy complex of Ukraine. The further development of fuel and energy sectors of Ukraine is forecasted. The approaches to ensure Ukraine's energy independence and improve the investment climate in Ukraine's energy sector are proposed. The development of the sectors of the fuel and energy sector of Ukraine is forecasted and approaches to ensuring the energy independence of Ukraine and improving the investment climate in the energy sector of Ukraine are proposed. It is determined that the level of reducing the energy intensity of the economy, diversification of sources and ways of energy supply and increasing their domestic production will increase not only energy but also economic and environmental security, which will optimize the energy balance and create a solid foundation for sustainable energy future of Ukraine.

Key words: energy security, Ukraine, energy resources, energy efficiency.

1. INTRODUCTION

The economic development of Ukraine is influenced by a number of factors, the main of which is energy. Our country belongs to the group of countries that consumes a lot of energy and, accordingly, for which the issue of energy security is of particular importance.

Ensuring energy security is one of the primary tasks for creating conditions for the normal functioning of the all Ukrainian economy sectors. Energy security is currently one of the most important components of the country's economic security, as only with the reliable supply of fuel and energy resources the full functioning of the economy can be possible.

2. RESULTS OF THE RESEARCH

Theoretical approaches to the interpretation of the concept of «energy security»

The concept of «energy security» is multidimensional. According to the definition of the International Energy Agency, energy security is uninterrupted access to energy resources at an affordable price (Ensuring the uninterrupted availability...).

In our opinion, the concept of «energy security» can be considered in a broad and narrow sense. In the broad sense – energy security of the state can be considered as a state of its protection against threats of energy nature (Zemlianyi M. H., 2009) or a state of providing the state with energy resources and the absence of a monopoly dependence on the supply of imported energy.

In a narrow sense, scientists consider state energy security differently. For example, energy security is understood as the achievement of a state of technically reliable, stable, economically efficient and environmentally safe provision of energy resources of the economy and social sphere of the state (Rozporiadzhennia KМУ "Pro skhvalennia Enerhetychnoi stratehii Ukrainy na period do 2030 roku" 2013).

According to E. Sukhin, energy security is the ability of the state to provide the most reliable, technically safe, environmentally friendly and substantiated sufficient energy supply of the economy and the population, and guaranteed provision of state leadership opportunities in the formation and implementation of the national interests protection policy in the energy sector without undue external and internal pressure in modern and predictable conditions (Sukhin. 2005).

Energy security is the timely, complete and uninterrupted supply of fuel and energy of the required quality of material production, non-productive sphere, population, communal-household and other consumers in order to avoid harmful effects on the environment.

According to Ukrainian scientists, the Ukraine's energy security should be understood as the ability of the state to ensure efficient use of its own fuel and energy base, to carry out optimal diversification of sources and ways of energy supplying to Ukraine, to ensure the citizen's life and the functioning of the national economy in normal mode, State of Emergency and martial law, to prevent sharp price fluctuations for fuel and energy resources or to create conditions for painless adaptation of the national economy to new prices for these resources (Shlemko, Binko, 1997).

Threats to a state's energy security are: a situation, phenomenon, or event of a short or long-term nature that may limit or disrupt the process of providing energy resources, destabilize the operation of an energy complex, cause accidents on its facilities, or cause other negative consequences for the economy and society.

According to the «National Security Strategy of Ukraine» (2015), one of the topical threats to the national security of Ukraine is defined «actions to block Ukraine's efforts to counter the monopolization of strategic sectors of the national economy by Russian capital, to eliminate dependence on monopoly supplies of critical raw materials, especially energy resources» (Stratehiiia natsionalnoi bezpeky Ukrainy, 2015). The exacerbation of energy resources scarcity in the country was recognized as one of the greatest domestic risks for 2015–2017 (Ukraina: perspektyvy rozvytku, 2015).

The main threats to Ukraine's energy security include: low level of own energy resources; excessive dependence on energy imports; insufficient level of diversification of energy and technology supply sources, high level of energy intensity of production and use of energy resources by municipal services; an inactive energy efficiency and energy policy; corruption in the energy sector.

Assessing the country's energy security is a complex scientific and technical problem and there is no unified methodology yet. Thus, at the national level, in 2007 the Ministry of Economy of Ukraine approved

the Methodology for calculating the level of economic security of Ukraine (Metodyka rozrakhunku rivnia ekonomichnoi bezpeky Ukrainy, 2007), which provides for the assessment of energy security as a weighted sum of 10 indicators, a list of which and their thresholds are presented in Table 1. Since 2007 to date, the methodology of energy security assessment has not been revised, although the Macroeconomic Forecasting Office of the Ministry of Economic Development of Ukraine states that it is necessary to revise the system of indicators and their thresholds at least one every two years due to changes in the national and world economy.

According to the author, the threshold values of some of Ukraine's energy security indicators do not correspond to the realities, so it is inappropriate to analyze current indicators in comparison with them. Although such indicators as the degree of country's supply with fuel and energy resources, the share of own sources in the balance of the state fuel and energy resources, GDP energy intensity, the deterioration of the basic production assets of the fuel and energy complex enterprises are very important for determining the level of energy security.

Table 1

Main indicators for determining the level of Ukraine's energy security *

№	Indicator, unit of measure	Threshold value
1	GDP energy intensity, tons of energy in oil equivalent / thousand \$ of GDP	0,2-0,5
2	The level of country's supply with fuel and energy resources, %	not less than 100
3	The share of own sources in the balance of the state fuel and energy resources, %	not less than 50
4	The share of dominant fuel resource in consumption of fuel and energy resources, %	not less than 30
5	The deterioration of the basic production assets of the fuel and energy complex enterprises, %	not more than 50
6	The share of investments in enterprises of fuel and energy complex to GDP, %	3-4
7	Oil transit, million tons	56-65
8	Gas transit, billion m ³	175
9	The volume of coal production, million tons	70-100
10	The Share of fuel imports from one country (company) in its total volume, %	not more than 30

* Metodyka rozrakhunku rivnia ekonomichnoi bezpeky Ukrainy. Nakaz Ministrestva ekonomiky Ukrainy vid 02.03.2007 r. № 60 (2007) (http://www.me.gov.ua/control/uk/publish/article?art_id=97980&cat_id=38738).

Analysis of the fuel and energy complex of Ukraine and determination of the threats to Ukrainian energy security

Ukraine belongs to the countries that are not provided with their own energy resources very well. The part of own resources in the state's balance of fuel and energy sources is 64 %. Ukraine uses various energy sources for its own needs: coal, oil, natural gas, nuclear and hydro power, energy from non-traditional sources (wind, solar, biomass etc.). Ukraine imports gas, crude oil and petroleum products, coal (for Thermal Power Station operation) and electricity (in small amounts). More than 60% of the domestic energy balance of Ukraine is now made up of natural gas and coal. The main type of fuel is natural gas; its share in fuel and energy resources consumption in 2018 was 33.5%.

Gas consumption in Ukraine in 2018 was 32.3 billion m³, and our own production was 20.9 billion m³ (Fig. 1). The gas deficit was covered by imports of Russian gas from Europe (re-export), as direct gas supplies from Russia stopped in 2014. As of 2018, Ukraine had three main sources / routes of natural gas supplies: from Poland – 0.7 billion m³, Hungary – 3.4 billion m³, Slovakia – 6.5 billion m³. Accordingly, the main route for natural gas supply to Ukraine remains the Slovak one, although during the year 2018 there was a significant (21.4 %) increase in the Hungarian direction import, due to a reduction in tariffs for access to the Ukrainian GTS. The main importer of gas is Ukraine's National Joint Stock Company «Naftogaz», and the rest are private traders.

Ukraine has own significant gas reserves, which as at the end of 2017 amounted to 1.1 trillion m³, and can increase its own production of natural gas. At the same time, there is no significant increase in gas production, and the country is significantly depending on import of the resource, that creates a great threat to the energy security of our state. The main reason for this situation is that 75 % of our gas fields are depleted by 87 % (according to the «Naftogaz» data). In July 2019, «Naftogaz» presented a new gas production strategy

«Trizub», which can provide a significant breakthrough in this segment of hydrocarbon production. Another problem is that part of the natural gas that is extracted is also used to maintain further extraction, transportation it by the internal networks of gas transport companies, and to compress the gas for the purpose of its submission to the gas transmission system.

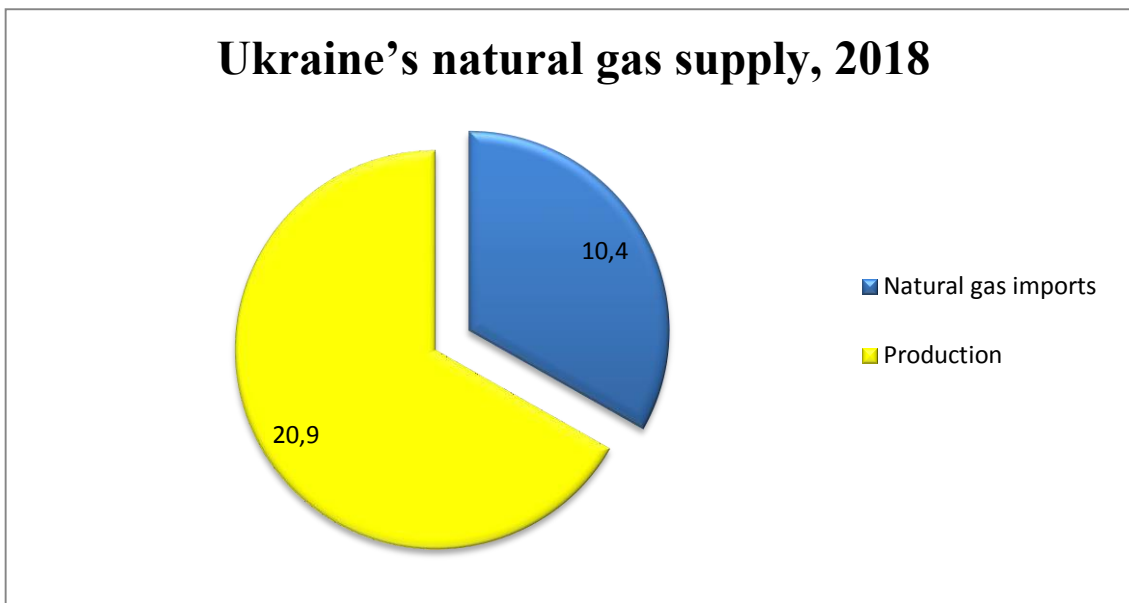


Fig. 1. Ukraine's natural gas supply (billion m³), 2018

Source. State Statistics Service of Ukraine (<http://www.ukrstat.gov.ua/>).

Ukraine has a significant transit potential. In 2019, 89.6 billion m³ of natural gas was pumped through the territory of Ukraine (3.2 % more than in 2018). The commissioning of the second branch of the «Nord Stream-2» gas pipeline will significantly reduce the volume, or generally stop the transit of Russian gas through Ukraine to Europe. This will create additional threats to the energy security of our country. Firstly, the termination of gas transit from Russia to Europe via the Ukrainian GTS may cause difficulties with gas supplies to some Ukrainian localities. Secondly, Ukraine has not bought gas from Gazprom since 2015, but the gas purchased from European companies comes from Russia. For this reason, the termination of transit may negatively affect the Ukrainian ability to import gas, as well as prices. Thirdly, the annual transit of Russian gas to Europe brings Ukraine \$ 3 billion and this is equal to our country's spending on gas imports. If these revenues are not available, we should look for funds to import gas from other sources.

Since the US Senate has adopted the law providing for sanctions against companies building «Nord stream-2», Russia will not be able to complete the pipeline yet. Therefore, in December 2019, Ukraine and Russia, with the mediation of the EU, signed a new contract on the transit of Russian gas through the territory of Ukraine to Europe, as the previous one ended on December 31, 2019. Under the terms of the new contract, the volume of Russian gas transit is 65 billion m³ in 2020 and 40 billion m³ each year during 2021–2024, provided a competitive tariff (Hazova uhoda mizh Ukrainoiu ta RF, 2019).

33.29 million tons of coal was produced at Ukrainian mines in 2018 according to the Ministry of Energy and Coal Industry. In 2019, coal production in Ukraine at all forms of ownership enterprises amounted to 31.21 million tons of coal, which is 13.8 % less than in 2018. In 2019, the production of thermal coal decreased by 24,0 %, and coking coal increased by 51,1 % compared to 2018.

There are 37 mines operating in Ukraine today, 33 of them are state-owned, and all the rest belong to DTEK (the largest vertically integrated private energy company in Ukraine). Private mines produce approximately 73–75 % of all coal (Perspektiv u vuhilnoi haluzi v Ukraini nemaie, 2020).

Ukrainian mines are mostly unprofitable. If we take into account the EU policy regarding the rejection of thermal coal as a resource, in the context of global warming and climate change, there are no special prospects for those mines that are now profitable. Moreover, they can become a burden for the whole Ukraine, because Europe is currently discussing the introduction of import duties for all countries where coal is used as energy.

The country does not meet its needs for oil and petroleum products, and oil production is declining annually (Fig. 2). In 2019, Ukrainian enterprises of all forms of ownership produced 2.13 million tons of oil and gas condensate, and consumed 10.86 million tons of petroleum products (U 2019-mu rotsi Ukraina vydobula menshe hazu i bilshе nafty, 2020) . Imports of oil and petroleum products account for 85 % of domestic consumption (Fig. 3). Ukraine spends \$ 6 billion annually on import of this energy resource. There are 7 existing oil refining facilities in Ukraine, only two are operating: the Kremenchug refinery (PJSC «Ukratnafta») and the Shebelinsky gas processing plant (PJSC «Ukrgazvydobuvannia»). Their installed capacity is 18.6 million tons and 1 million tons, respectively.

Ukraine has significant reserves of oil and condensate – 200 million tons (according to NJSC «Naftogaz»). But oil production in Ukraine is not very profitable: we do not have compactly located deposits in which oil lies at a shallow depth; one need to invest a lot of money in the modernization of drilling rigs that are 50 or even more years old; it is necessary to attract large investments in oil exploration. Therefore, it is not necessary to expect an increase in own oil production in the nearest future.

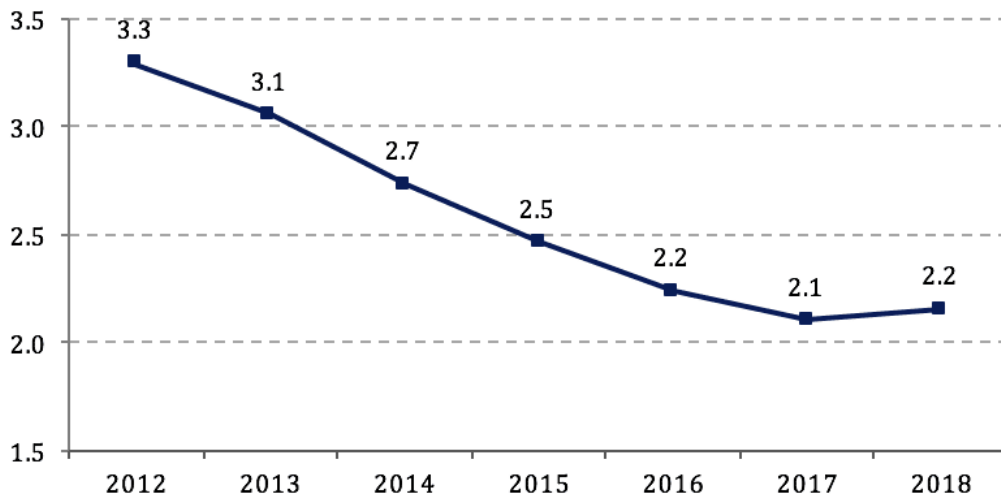
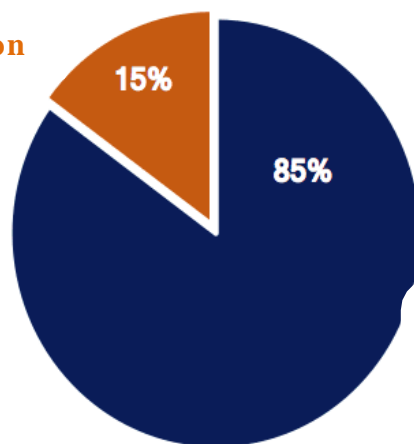


Fig. 2. Dynamics of oil production with gas condensate, million tons

Source. Ministry of Energy and Coal Industry (http://mpe.kmu.gov.ua/minugol/control/uk/publish/officialcategory?cat_id=245183250).

**Extraction
and
production**



**Import of oil and
petroleum products is
\$ 6 billion a year**

Fig. 3. Provision of oil and petroleum products to Ukraine, 2018

Source. State Statistics Service of Ukraine (<http://www.ukrstat.gov.ua/>).

Much of the energy in Ukraine is produced by electrical power plant. In 2019, they produced 153,964.8 million kWh, which is 3.4% less than in 2018. The majority of electricity was produced by NPPs, although compared to the same indicator in 2018, the electricity production at NPPs decreased by 1,7 % (Table 2). During this period, electricity production from renewable energy sources (WPP, SES, biomass) increased by 2,909.6 million kWh compared to 2018 or 110.5 % and amounted to 5 542.3 million kWh.

Table 2

Structure and volumes of electricity production by UES of Ukraine during 2018–2019 *

Type of power plant	Production of electricity in 2018		Production of electricity in 2019	
	million kWh	%	million kWh	%
NPP	84398,2	53	83002,6	53,9
TPP and TPC	58807,8	36,9	55784,6	36,2
HPP and PSEPP	12008,4	7,5	7869,0	5,1
RE	2632,7	1,7	5542,3	3,6
Other sources	1503,5	0,9	1766,3	1,2

*According to the State Statistics Committee of Ukraine (<http://www.ukrstat.gov.ua/>)

The threat to the electricity sector of Ukraine and energy security in general is that NPP operation is 100 % dependent on imported nuclear fuel supply, and TPP operation is 20% dependent on coal supply. According to the State Statistics of Ukraine, in 2018 our state imported 547 tons of nuclear fuel worth \$ 0,5 billion and 6.9 million tons of coal worth \$ 742 million. Since the beginning of the conflict on the East of Ukraine, we have lost access to anthracite deposits in the uncontrolled territories of Donetsk and Luhansk regions. Importing energy coal is quite expensive and makes TPP operation unprofitable.

One of the threats to Ukraine’s energy security is the high level of energy intensity of production. The Ukrainian economy remains one of the least energy efficient in the world. Over the past 20 years, major economies in the world have significantly reduced energy consumption and energy intensity of production. In Ukraine, a considerable part of energy resources is spent in vain due to the depreciation of funds, old equipment, old technologies and inefficient housing and communal services.

The energy intensity of the Ukrainian economy in 2017 amounted to 0.27 tons of energy in oil equivalent/ thousand \$ of GDP. This indicator was higher not only in comparison with the leading economies of the world, but also with the neighboring countries of Central and Eastern Europe (for example, in Belarus it was 0.16, Hungary – 0.11, Poland – 0.1). According to the Global Energy Statistical Yearbook 2019 annual report, the Ukrainian economy remains one of the most energy-intensive in the world with 0.238 tons of energy in oil equivalent / \$. For comparison, in Germany this figure is 0,072 tons of energy in oil equivalent / \$ (Global Energy Statistical Yearbook, 2019).

The high level of GDP energy intensity is due to several factors. First, it is the distorted structure of GDP. A significant part of it is formed in resource- and energy-intensive industries (for example, ferrous metallurgy, chemical industry, fuel and energy complex, and mining). Secondly, low energy efficiency in the energy transformation sector. The average efficiency of coal use in thermal power in Ukraine is almost 1.5 times lower than in commercially available technologies, and electricity losses in the networks is twice higher than in Germany and the USA. Thirdly, it is high specific energy consumption by households. In Ukraine, the average specific annual energy consumption of a housing stock is 250-270 kWh/m², which is almost twice higher than the level of Europe’s countries with similar climatic conditions (Iaroshchuk, 2018).

Energy intensity is recognized as a key criterion for evaluating the success of Ukraine’s energy sector reform. The energy intensity of the Ukrainian economy is 3-4 times higher than the corresponding average indicator of EU countries. GDP energy intensity is projected to decrease up to 0.13 tons of energy in oil equivalent/\$ in 2035 (Ohliad analitychnykh robit mizhnarodnykh enerhetychnykh orhanizatsii, 2018).

Ukraine imports all strategically important fuel and energy resources. Energy efficiency is a guarantee of reduced imports, additional GDP growth, improved competitiveness of products, and the ability to become an energy exporter. The most important task for Ukraine is to strengthen the cooperation on the implementation of energy efficient technologies and processes: modernization of the industrial complex, transmission lines,

and improving the energy efficiency of the utility. And this requires the coordinated action of the state, business and each citizen.

Ukraine's energy sector depends on imports of fossil fuels (natural gas, oil, coal), which poses a significant risk to the country's energy security. Huge costs for the purchase of imported energy (petroleum, natural gas and coal) make our economy vulnerable and dependent on global economic processes. A significant reduction in these costs can be achieved by developing renewable energy sources, natural gas production, and improving the energy efficiency of the economy.

Regulatory and legal documents, main tasks on the way to ensuring energy security of Ukraine.

Nowadays, there are a lot of changes in the approaches to energy policy-making and energy security of states. Ukraine is not an exception. New challenges and threats to the development of our country's energy have led to the need of formulating a new energy policy and developing a new energy strategy.

In 2013, the Energy Strategy of Ukraine for the period up to 2030 was adopted. This document defines the country's vectors of the energy sectors development in accordance with the goals and objectives of the fuel and energy complex by 2030. Emphasis was put on implementing energy efficiency and energy conservation measures, developing a competitive environment and improving the efficiency and transparency of markets, and increasing focus on environmental protection. One of the main goals of the Energy Strategy was to increase the level of energy security of Ukraine (Enerhetychna stratehiia Ukrainy na period do 2030 r., 2017).

Great changes in the Ukrainian economy and energy during 2014-2016, which directly and significantly influenced the prospects of the development of the fuel and energy complex and energy policy of Ukraine, forced the authorities in 2017 to adopt a new energy strategy. «Ukraine's Energy Strategy until 2035: Security, Energy Efficiency, Competitiveness» is a document that outlines strategic guidelines for the development of Ukraine's fuel and energy complex and its energy policy for the period until 2035. The purpose of the new Energy Strategy of Ukraine is to meet the needs of the society and the economy in fuel and energy resources in a technically sound, safe, cost-effective and environmentally friendly way to guarantee improved living conditions of society (Nova enerhetychna stratehiia Ukrainy do 2035 roku, 2017).

Implementation of the Energy Strategy is envisaged in three main stages (Table 3). It is assumed that the reform of Ukraine's energy complex will be completed, priority targets for safety and energy efficiency will be achieved, and its innovative renewal and integration with the EU energy sector will be ensured till 2025.

Table 3

The main stages of implementation of the Ukrainian Energy Strategy until 2035*

Stage	Implementation period	Main tasks
<i>Reforming of the energy sector</i>	till 2020	completion of the implementation of the Third Energy Package, it allows to create full-fledged natural gas and electricity markets in accordance with EU energy legislation; complete the institutional integration of Ukraine into ENTSO-G; implement most of the measures on integration of the Integrated Energy System of Ukraine into the ENTSO-E energy system; reduction of GDP energy intensity;
<i>Optimization and innovative development of energy infrastructure</i>	till 2025	integration of the Ukrainian power system with the continental Europe zone ENTSO-E in operation mode; full integration into the European gas transport system ENTSO-G; implementation of investment projects within the framework of the National Emissions Reduction Plan for Large Combustion Plants; attracting private investments;
<i>Ensuring of sustainable development</i>	till 2035	innovative development of the energy sector and construction of a new generation. Investments into new capacities of generation to replace the capacity to be decommissioned.

*Nova enerhetychna stratehiia Ukrainy do 2035 roku: «Bezpeka, enerhoefektyvnist, konkurentospromozhnist» (<http://mpe.kmu.gov.ua/minugol/doccatalog/document?id=245213112>)

The following institutions are involved in ensuring the energy security of Ukraine and implementing the Ukraine Energy Strategy until 2035: the Cabinet of Ministers of Ukraine (CMU), the Ministry of Energy and Coal Industry and the National Commission for State Regulation in the Spheres of Energy and Public Utilities.

The highest body of executive power which is responsible for collective decision-making and supervision of state policy in the energy and electricity sectors is the CMU. For example, the CMU, together with the National Security and Defense Council of Ukraine, coordinates and controls the implementation of Ukraine's Energy Strategy until 2035.

Ministry of Energy and Coal Industry is responsible for monitoring the results of the Ukrainian Energy Strategy implementation, for developing the Action Plan of this strategy implementation, as well as for coordinating and clarifying the measures aimed at its implementation. It is also obliged to monitor the implementation of the Ukrainian Energy Strategy provisions within the implementation of measures in the energy sector annually and to submit annual reports on the state of implementation for consideration by the Cabinet of Ministers and the NSDC.

The Action Plan for the implementation of the phase «Energy Sector Reform (2020)» of the «Energy Strategy of Ukraine up to 2035: Security, Energy Efficiency, Competitiveness» identifies 186 measures. In 2018, it was necessary to complete the implementation of 91 measures, 2019 – 34 measures, 2020 – 47 measures (Zvit pro stan realizatsii Enerhetychnoi stratehii Ukrainy na period do 2035 roku, 2019). The state of measures implementation is shown in Table 4.

The main tasks on the way of ensuring energy security of Ukraine are: ensuring energy independence; formation of a conscious and energy-efficient society; creation of competitive gas markets, coal, oil and petroleum products, electricity and competitive conditions for its transportation throughout Ukraine; creation of conditions for investment attractiveness of Ukraine's energy sector; integration of gas and electricity markets and relevant transport networks of Ukraine into the energy space; decarbonisation of the energy sector; introduction of an effective strategic management system in the fuel and energy complex of Ukraine.

Table 4

**The State of the Energy Strategy of Ukraine implementation
for the period of 2018–2020***

Year	2018	2019	2020
Number of completed measures	27	2	1
Number of activities that are carrying out	64	32	46
Total	91	34	47

* Zvit pro stan realizatsii Enerhetychnoi stratehii Ukrainy na period do 2035 roku (<http://mpe.kmu.gov.ua/minugol/doccatalog/document?id=245351520>)

The country lifting up to the level of maximum energy independence can be ensured at the expense:

- the increasing of own energy resources extraction. The settlement of current volumes of gas imports with the capacity of its own extraction allow the state not to depend on the external market conditions, significantly reduce the pressure on the currency market and get rid of Russian Federation speculation. An important task in this area is to optimize the balance of consumption and increase of natural gas extraction, improve the efficiency of gas distribution networks, GTS trunking networks, underground gas storage infrastructure, etc.;

- the share increasing of renewable energy usage. It is promising for Ukraine to steadily expand the usage of all types of renewable energy, which will become one of the instruments for guaranteeing the energy security of the state. In the short and medium term perspective (until 2025), the share of renewable energy is projected to increase to 12 % of the country's total energy consumption, and in the long term perspective (until 2035) – not less than 25 %. A prerequisite for the implementation of this task is the creation of a favorable investment climate;

- diversification of imported energy sources. Since natural gas extraction in Ukraine does not completely cover its needs, for example, as of 2018, gas extraction was able to cover the market needs by only 62.6%, therefore, the issue of natural gas imports from external sources remains important for Ukraine. Until 2015, the main source of natural gas imports was the Eastern border of Ukraine, where Russian and Central Asian gas was supplied, and since 2015, imported gas came only from Europe. The issue of gas supply sources diversification to Ukraine can be solved by constructing a liquefied natural gas terminal in Odessa (following

the example of the Baltic countries). As for oil imports, Ukraine partially diversified its crude oil supplying in 2019. The US and Libya started supplying oil to Ukraine along with traditional suppliers (Russia, Azerbaijan). Although there is a problem – Ukraine does not have the capacity to receive tankers with a deadweight of more than 300 thousand tons. In terms of coal import, its main suppliers are Russia (almost 60 %) and the USA (30 %) (Ukraina skorotyła vytraty na import vuhillia, 2020). To ensure energy security, Ukraine must reduce its coal supplies from Russia and find an alternative source, or reduce imports of this type of fuel altogether by replacing it with another (for example, by renewable energy sources).

The spread of European energy standards on Ukrainian legislation will significantly increase Ukraine's resistance in its attempts to politicize interstate relations in the energy field, and joining the Pan-European market – to liberalize and de-monopolize internal energy markets and make them more transparent and competitive.

The solution of energy sector's decarbonization problem is quite important, taking into account the introduction of European standards in the energy sector and Ukraine's adoption of Paris Climate Agreement 2016. The current level of pollutant emissions in Ukraine exceeds EU standards by an average of 7–80 times depending on their types. It is planned to execute by SO₂ and dust until 2028, by NO_x until 2033. Primarily steps concerning the solution of that issue are the reduction in country's GDP energy intensity, partially decommission of TPP, increase in the usage of nuclear and «green» energy (they have the least amount of greenhouse gas emissions).

The formation of a conscious and energy-efficient society is the key point of the effective Ukraine's economy development. The primary steps in order to resolve this challenge are: upbringing energy-saving awareness among citizens; encouraging them to use household appliances and lighting with high energy efficiency; reduction of energy consumption by housing and utilities services through increasing energy efficiency of residential and public buildings, as well as energy efficiency of heating equipment; improving energy efficiency in the sectors of energy manufacturing and transformation, especially in thermal electric power and central heating through optimization of capacity utilization, technical and technological modernization; energy savings in the systems of transportation and distribution of electric and thermal energy; implementation of energy management system at the state, city, budget and administrative buildings and enterprises levels.

The successful implementation of energy sector reform and ensuring of energy security is the formation of a favorable investment climate in Ukraine's energy sector. The New Energy Strategy assumes that the state must invest minimally, but promote a formation of stimulating investment climate the most. The main preconditions for attracting investment: Rule of Law, adaptation to the European energy legislation, de-offshore of economy, implementation of stimulating tax and regulatory legislation, economically justified tariffs, conducting of communication policies to encourage strategic and financial investors to enter the market. The share of direct investments from the state budget of Ukraine in the development of energy infrastructure should not exceed 5-10%, while direct investment from one country should not meet the critical level that necessitates diversification of investments.

3. CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

Ukraine's energy security is one of the most important components of its economic security. There are number of threats to Ukraine's energy security, the main of which are low level of availability of own energy resources, excessive dependence on energy imports, insufficient level of energy sources diversification, and technologies, high level of energy intensity of production and use of energy resources utilities, ineffective energy policies and energy efficiency, corruption in the energy sector.

The level of energy consumption reduction of the economy, diversification of sources and ways of energy resources supply and the increase of their domestic production will contribute not only to increase of energy, but also economic and environmental security, but also lead to optimization of energy balance and to creation of a solid foundation for a sustainable energy future of Ukraine.

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ЕНЕРГЕТИЧНА БЕЗПЕКА УКРАЇНИ

У статті проаналізовано теоретичні підходи до розуміння поняття «енергетична безпека». Охарактеризовано основні показники рівня енергетичної безпеки України. Наведено рівень забезпеченості енергоресурсами України. Проаналізовано розвиток сфер паливно-енергетичного комплексу: газової промисловості, вугільної промисловості, нафтової промисловості й електроенергетики.

Основні загрози енергетичній безпеці України визначаються як низький рівень доступності власних енергоресурсів; надмірна залежність від імпорту енергоносіїв; недостатній рівень диверсифікації джерел постачання енергії та технологій, високий рівень енергоємності виробництва й використання енергоресурсів комунальними службами.

Проаналізовано основні нормативно-правові документи, що стосуються енергетичної безпеки України. Окреслено Стратегію енергетичної безпеки України до 2035 р. Визначено інструменти державної політики щодо запобігання загрозам енергетичній безпеці України. Визначено головні завдання щодо енергетичної безпеки України: забезпечення енергетичної незалежності; формування свідомого й енергоефективного суспільства; створення конкурентних ринків газу, вугілля, нафти та нафтопродуктів, електроенергії й конкурентоспроможних умов їх транспортування територією України; створення умов для інвестиційної привабливості енергетичного сектору України; інтеграція газового й електроенергетичного ринків та відповідних транспортних мереж України в енергетичний простір; декарбонізації енергетичного сектору;

запровадження ефективної системи стратегічного управління в галузях паливно-енергетичного комплексу України.

Прогнозується подальший розвиток паливно-енергетичного сектору України. Запропоновано підходи до забезпечення енергетичної незалежності України та покращення інвестиційного клімату в енергетичному секторі. Спрогнозовано розвиток галузей паливно-енергетичного сектору України й запропоновано підходи до забезпечення енергетичної незалежності України та покращення інвестиційного клімату в енергетичному секторі України. Визначено, що рівень зниження енергоємності економіки, диверсифікація джерел і шляхів постачання енергоресурсів та нарощування їх вітчизняного виробництва сприятимуть підвищенню не лише енергетичної, а й економічної та екологічної безпеки, що приведе до оптимізації енергетичного балансу й дасть змогу створити міцне підґрунтя для сталого енергетичного майбутнього України.

Ключові слова: енергетична безпека, Україна, енергетичні ресурси, енергоефективність.

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CRIMEA VERSUS KASHMIR: A COMPERATIVE OVERVIEW

World is changing rapidly, but few conflicts are standing still for decades. Kashmir dispute is a clear example, which is unresolved for about 70 years now. Another territorial dispute is Crimea, which is now bleeding for more than 5 years. Due to several similarities “the Kashmir conflict” could be taken as a case study to understand the behavior of international politics on such territorial disputes. “Is Crimea going to be a Kashmir of Europe?” What is the essence of constant obstacles of Kashmir dispute that can reflect in Crimea also? What are the objectives and geopolitical importance of these disputes, what do aggressor forces claim and what is the reality behind several narratives? These question and similarities between Crimea and Kashmir issues are attempted to be highlighted in this paper. Historical development of core conflicts is focused in the overview, as it is extremely important for students of international politics to learn lesson from similar examples available. Solutions of basic problems are answered in conclusion.

Key words: Crimea, Kashmir, Dispute, Pakistan, Ukraine, Geopolitical, Freedom, Movement, Nuclear, Political, United nations

1. INTRODUCTION

It is very important for individuals to learn that patriotism is good in rational amount. Less patriotism may not be so harmful for a nation but an excessive quantity of it brings destruction. Nations can survive with fewer resources but satisfaction and mental health is bigger than the pseudo pride vehemently plundered by dividing nations and making human homeless.

Rulers who rules in the name of public but against the will of public are real enemies of their own nations, especially when they are crafting hatred in minds of common masses. Overenthusiastic nations spend their budget on inhuman activities rather than providing their people the needful. Racialism, lingual discrimination and religious biases at times play lethal role. However these three build the character of a nation and produce regional heritage but when ethnology is used as a brainwashing tool, the result usually appears in the form of Kashmir dispute and Crimea dispute.

It is not always the case that one must fight for a piece of land, but sometimes taking stand for the right and other times compromise can make things balanced and smooth. If a strategy fails, instead of continuing the same practice, a reasonable tilt can bring results. U-turns, in politics, are not defeat but a way back to restart things and make life easier. Kashmir issue is burning since 7 decades and getting more completed with time as both Indian and Pakistan’s nations are less rational when it comes to national pride. Crimean issue is becoming another sad story of diplomatic failure, but if benevolence is brought back by stakeholders, it might change the