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Conceptual basis of the formation of energy policy of Ukraine as an important part of ensuring state security

The article deals with the peculiarities of the implementation of the state energy policy of Ukraine as an important component of ensuring state security. The main stages of implementation of the Energy Strategy of Ukraine are presented. The problematic aspects of ensuring the state's energy security in modern conditions are highlighted. The conceptual principles of forming the state energy policy of Ukraine as an important component of ensuring state security are proposed.

Keywords: *Energy Strategy of Ukraine, state energy policy, mechanisms of implementation of state energy policy, energy security, state security.*

According to the Law of Ukraine "On National Security of Ukraine" (which defines the principles and principles of national security and defence, the goals and basic principles of state policy that guarantee the protection of society and each citizen

from threats), state security is defined as the protection of state sovereignty, territorial integrity and democratic constitutional order and other vital national interests from the real and potential threats of non-military character. At the same time, threats to the national security of Ukraine include phenomena, trends and factors that make it impossible or complicate or may make it impossible or difficult to realize national interests and preserve national treasures of Ukraine [6].

Also, the Law of Ukraine "On National Security of Ukraine" contains the wording that the state policy in the areas of national security and defence is aimed at ensuring military, foreign policy, state, economic, informational, environmental safety, cyber security of Ukraine, etc. [6].

Unfortunately, among these spheres there is no energy component of national security and defense, although, of course, energy issues are important components of military, foreign policy, economic, ecological safety of the state, which needs to be taken into account in determining the conceptual foundations of the formation of the state energy policy of Ukraine as an important component. ensuring state security.

Consideration of the conceptual basis of the formation of the state energy policy of Ukraine as an important component of the provision of state security has been devoted to its scientific publications by such scholars as Bennmeny M., Vinnychuk Y., Voloshin O., Yefimov M., Palamarchuk V. and others [1; 2; 5; 7; 8].

However, many issues regarding the definition of the conceptual framework for the formulation of the state energy policy of Ukraine as an important component of ensuring state security remain insufficiently investigated.

According to the Decree of the President of Ukraine No. 287/2015 "On the decision of the National Security and Defence Council of Ukraine dated May 6, 2015" On the Strategy of National Security of Ukraine ", the following threats to energy security include: distortion of market mechanisms in the energy sector; insufficient level of diversification of sources of energy supplies and technologies; criminalization

and corruption of the energy sector; Ineffective energy efficiency and energy efficiency policy.

The priorities for ensuring Ukraine's energy security are: reforming energy markets, ensuring transparency of economic activity, competition in these markets and their demon-polization, integration of Ukraine's energy sector with the energy markets of the EU and the European energy security system; increasing energy efficiency and ensuring energy saving; diversification of sources and routes of energy supply, overcoming dependence on Russia in the supply of energy resources and technologies, development of renewable and nuclear energy, taking into account the priority of environmental, nuclear and radiation safety issues; formation of the energy supply system of the national economy and society in a special period [9].

Therefore, it is no coincidence that the Energy Strategy of Ukraine for the period up to 2035 "Security, Energy Efficiency, Competitiveness" stipulates that by 2025 the reform of the energy complex of Ukraine will be completed for the most part, the priority targets for safety and energy efficiency will be achieved, its innovation renewal and integration with the energy sector of the EU.

In our opinion, the strategy of realization of the state energy policy of Ukraine in the modern conditions should take into account a number of factors, the main among which are political-legal, socio-economic, ecological harmless.

1). Taking into account the political and legal factors will allow Ukraine to increase its role and significance in the world community, gain recognition of the country that makes a significant contribution to the global energy security, deprive our country of energy dependence on energy exporters and increase the national level of energy security.

This is especially important in today's conditions, because on April 18, 2019, the government of Russia approved a resolution to extend sanctions to Ukraine, which complicated the export of coal and petroleum products to Ukraine: diesel, gasoline and liquefied gas. It is also forbidden to export crude oil to Ukraine. More than half of

imports from Russia, namely $ 4.4 billion, are coal and oil products: diesel fuel, liquefied gas, gasoline, lubricants and other petroleum products. Russia's diesel fuel in Ukraine is 40% of the Ukrainian market, while liquefied gas accounts for 30% of the market. In 2018, diesel was delivered from Russia at 65 billion UAH, and liquefied gas - by 8.75 billion UAH. In addition to these products, Ukraine is dependent on Russia for the supply of energy and coking coal: in 2018 Russian companies put coal in Ukraine at $ 1.78 billion [2].

In addition to coal and petroleum products, the third place in terms of customs statistics is the position "Nuclear Reactors, Boilers, Machines", that is, the import of Russian nuclear fuel and components for Ukrainian nuclear power plants, which were built according to Soviet projects (in 2018, the volume of this import was $ 660 million, including the volume of purchase of nuclear fuel - $ 375 million [2].

At present, Ukraine cannot completely refuse to supply nuclear fuel from Russia, since Ukrainian nuclear power plants are built on Soviet technology. Accordingly, for such reactors, Russian fuel cells are the project fuel. In order to diversify supplies, since 2005, Ukraine has begun testing the fuel collections of another manufacturer - the American Westinghouse Electric Corporation, which is being manufactured in Sweden. Now elements of the American corporation are used on 4 out of 15 Ukrainian reactors: one of which fully works on Westinghouse fuel, others operate in a combination with Russian fuel mode [2].

Therefore, diversification of sources and directions of supply of energy resources, logistics of supplies from alternative markets that geographically do not intersect with Russia, is an important component of ensuring Ukraine's energy security.

2). Socio-economic factors.

The development of the fuel and energy complex of the country and the energy market should be closely linked to the socio-economic development of Ukraine (raising the level and quality of life of citizens, including by providing affordable energy to the economy and population).

Thus, according to the polls on the website of the Ministry of Energy and Coal Industry of Ukraine, 10% of respondents said that they are setting economically justified tariffs, and 77% of respondents believe that this is the approximation of energy to the needs of society [10].

Also, the strategy of realization of the state energy policy of Ukraine in the modern conditions should take into account such socio-economic factors as the transition to alternative types of energy, which will save the non-renewable energy resources. In addition, the cost of energy generated from alternative sources and payback period for alternative energy projects is constantly being reduced (unlike traditional energy sources).

It should be noted that renewable energy sources are particularly effective in small settlements and are intended for autonomous energy consumers remote from centralized energy supply systems and belong to the inhabitants of the respective territorial community, which promotes their socio-economic development and prevents the decline of territorial communities.

Also, at the state level, more attention should be paid to the subsidization of housing and communal services to the population with the use of energy resources.

Thus, the International Monetary Fund in its new report presented new data on how much countries spend on energy subsidies and called for a reduction in state support for fossil fuels.

If in 2015 subsidies from 191 countries for fossil fuels amounted to 4.7 trillion. dollars The United States (or 6.3% of world GDP), in 2017, this figure increased globally to 5.2 trillion dollars The US (or 6.5% of GDP). The IMF expects further high levels of energy subsidies to continue and calls for them to be cut, as it requires large expenditures from the state and may hinder the government's efforts to reduce its budget deficit. In addition, subsidies encourage excessive energy consumption, accelerating the depletion of natural resources, and reduce incentives for investments in other forms of cleaner energy [4].

3). Ecologically harmless factors.

The state energy policy should contribute to the preservation of the environment, and the national energy should be "friendly" to the environment and contribute to the resolution of existing environmental problems. The state should be to offset the detrimental impact on the environment of the extraction and processing of traditional energy resources and promote the development of renewable energy, which contributes to the preservation of the environment. Ukraine's state energy policy must take into account global, regional, local environmental constraints and challenges, contribute to reducing human-induced environmental impacts, and counteract global climate change.

In general, the Energy Strategy of Ukraine for the period up to 2035 "Security, Energy Efficiency, Competitiveness" is planned to be implemented in three main stages [3].

Stage 1 Energy sector reform (by 2020). In the coming years, the main emphasis will be put on the implementation of reforms and the formation of a competitive and investment-friendly environment [3].

Thus, analysts claim that the explored reserves of natural gas in Ukraine make 1104 billion cubic meters (second place among the countries of Europe). With the current level of technology and consumption development, Ukraine will be able to 35 years (by 2050) on its own gas supply. In this case, for example, Norway, the USA and Canada, where gas reserves are much smaller, will be able to survive on self-sustainment from 13 to 11 years [8].

However, these states do not fear that their reserves will be exhausted, since they are actively investing in the exploration and extraction of deposits of hydrocarbons. Therefore, Ukraine also needs to look for new deposits, innovative ways of extraction or energy saving, since only the country that is investing sufficiently in the development of energy resources through the formation of a competitive and investment-friendly environment can be independent.

The most important priority at this stage of the implementation of the Energy Strategy of Ukraine should be promotion of energy efficiency and the development of renewable energy sources (RES). This will not only help reduce imports, but also provide enormous savings that will contribute to economic development. The introduction of mandatory energy targets will help reduce dependence on imports of fossil fuels, reduce carbon dioxide emissions, stimulate economic growth and create new jobs, not only in the energy sector [3].

Therefore, at the first stage, it is expected to achieve radical progress in RES by increasing their share of final consumption to 11% through a stable and predictable policy to stimulate RES development and investment attraction [3].

Stage 2 of the Energy Strategy of Ukraine envisages optimization and innovative development of the energy infrastructure (by 2025).

It is well-known that domestic energy is an industry that is in urgent need of innovation and the construction of an innovative infrastructure. Most of its objects are designed according to the technologies of the 60-ies of the last century, and wear and tear of equipment reaches 70-80%. Predicting the future development of the industry, we must rely on the indicators of the world's leading centres. The International Energy Agency and Bloomberg New Energy Finance named three major platforms: decarbonisation, decentralization and digitalization. They are aimed at achieving environmental friendliness, competitiveness and the transition to Internet communications. Undoubtedly BigData, Blockchain, EnergyStorage will soon turn the world power into automated systems for smart production, transportation, distribution and power supply [5].

At this stage of the implementation of the energy strategy of Ukraine it is planned to intensively attract investments in the RES sector, development of distributed generation, in particular, the development and implementation of the Smart Grids implementation plan and the creation of an extensive infrastructure for the development of electric transport [3].

Consequently, the second stage of the implementation of the energy strategy of Ukraine will be oriented towards the work of the new market environment and the actual integration of the United Energy System of Ukraine with the European energy system, which will significantly affect the justification of the choice of objects for reconstruction or new construction in the energy sector and for enhancement energy efficiency [3].

Following the signing of the Association Agreement with the European Union, Ukraine must set itself goals that are in line with the objectives of the EU.

Energy consumption of the EU is characterized by two peculiarities:

1. Through consistent energy saving and energy efficiency policies, overall energy consumption has remained virtually unchanged for more than 20 years.

2. The EU attaches great importance to the development of RES.

To create an efficient market in the energy sector, it is necessary for the state to deviate from the practice of administrative regulation and management and become a driving force that ensures the creation and guarantees the functioning of fair rules, where the determining parameter will be the economy, which will stimulate competition between energy market actors and improving the quality of services for consumers [1].

The Stage 3 of the Energy Strategy of Ukraine provides for the sustainable development of this area (by 2035).

The third stage of the Energy Strategy of Ukraine is aimed at the innovative development of the energy sector and the construction of a new generation. Investing in new generating capacities to replace capacities that are to be decommissioned. The main preconditions for attracting investment are: rule of law, adaptation to European energy legislation, de-economization of the economy, introduction of stimulating regulatory legislation, economically justified tariffs, implementation of communication policy to encourage strategic and financial investors to enter the market.

In the field of energy efficiency and environmental protection, introduction of passive house construction standards, achievement of target targets for SO2, NOx and dust emissions reduction in accordance with the National Emission Reductions Plan and implementation of the GHG emission trading system in Ukraine [3] are envisaged.

Also, the Energy Strategy of Ukraine for the period up to 2035 "Security, Energy Efficiency, Competitiveness" envisages a sectoral and sectoral breakdown of the strategic development of this sphere, namely: the gas sector, the oil sector, the coal sector, and renewable energy sources.

Yes, the development of the gas sector of Ukraine envisages:

• investment in exploration and development of new gas and gas condensate fields, including on the continental shelf and within the exclusive (maritime) economic zone of Ukraine;

• increase of national extraction due to gas from unconventional deposits of hydrocarbons to 30-35 billion m3 / year;

• continued involvement of leading global companies in the development of the Black Sea shelf and the development of non-traditional hydrocarbon deposits;

• full technical, institutional and legislative integration into European gas transportation networks, cooperation with 58 countries of Northwest, Southern Europe and other regions in connection with the joint implementation of diversification projects for gas supply to Central and Eastern Europe;

• Ukraine's entry into international projects for the development of a resource base, the transfer of new technologies.

The development of the oil sector of Ukraine by 2035 includes:

in the field of raw material extraction:

• Completion of digitization of oil fields by creating visualized web platforms that will allow economic entities to measure and track all data coming from the field;

• increase the volume of extraction of hard-to-reach resources due to new intensification technologies; stimulating the development of technologies for optimizing raw materials consumption.

In the field of processing of raw materials:

• the transition from "dirty" processes to technologies that are in line with the principles of "green chemistry" and energy conservation;

• Providing benefits to the petrochemical sector, attracting by-products and waste from other industries.

In the field of sales of petroleum products:

• stimulating the development of networks of electric refuelling and replacement of hydrocarbon fuels.

The development of the coal sector of Ukraine by 2035 includes:

• maximizing production efficiency for Ukraine's own needs;

• completion of measures for social reconversion of regions and settlements where mine closure was conducted.

The development of renewable energy sources in Ukraine up to 2035 will increase the use of RES to 25% of the total consumption due to:

• commissioning of new aggregates of hydroelectric power stations (subject to confirmation of environmental safety of projects);

• expansion of infrastructure for vehicles using non-carbon fuels;

• ensuring the work of civil defence systems on energy from renewable sources (biotails, household rubbish, etc.);

• replacing carbon fuels with other types where it is economically justified and technically feasible.

The key to fulfilling the above tasks of the Energy Strategy of Ukraine is the successful implementation of socio-economic reforms and improving the quality of public administration.

Consequently, the implementation of the aforementioned conceptual foundations for the formation of the state energy policy of Ukraine as an important component of ensuring state security will contribute to reducing energy intensity and increasing energy efficiency in all spheres of public life. Diversification of sources and directions of supply of energy resources, increase of national energy production of all kinds will promote increase of energy, social, economic and ecological safety, which will create a solid foundation for sustainable long-term development of Ukraine. The large-scale reform of the national energy industry has not only national but also international significance as a significant factor in counteracting global changes in the climate of the planet, improving the overall state of energy security not only of Ukraine but also of Europe.

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