

DOI: 10.55643/ser.1.51.2024.552

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Received: 11/01/2024

Accepted: 09/03/2024

Published: 31/03/2024

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INSTITUTIONAL SUPPORT FOR ATTRACTING AND REALIZING INVESTMENTS IN THE ENERGY SECTOR OF UKRAINE

ABSTRACT

The article analyzes the issues of adequateness of the institutional support for attracting and realizing investments in the energy sector of Ukraine to the current realities in which the country finds itself. The article emphasizes that public-private partnership is the basis for further attraction and realization of investments in the energy sector. The article highlights several issues such as attracting investment in the energy sector of Ukraine, and public-private partnership in the energy sector and identifies the ways to overcome them.

The necessity of improving the legal framework in the field of public-private partnership; development of institutional infrastructure supporting public-private partnership; providing guarantees for protecting the interests of all parties in the public-private partnership throughout the entire life cycle of the project is substantiated.

It is concluded that attracting and injecting investments in the energy sector is possible only in close cooperation with large private businesses by implementing elements and mechanisms of public-private partnership in the sector. It's the only way that the energy sector of Ukraine will be able to adapt to modern challenges to ensure its long-term sustainable development.

Keywords: state regulation, public-private partnership, energy sector, Energy Strategy, investments, institutional support

JEL Classification: L00, P00, Q40

INTRODUCTION

It is well known that investments play one of the most important roles in the development of the energy sector, so a state that cares about its present and future must effectively use a full range of economic, legal and administrative measures to offset negative trends caused by the reduction of investments in this sector and to constantly stimulate investment activity. It is necessary to actively use all available tools that contribute to the creation of a favourable investment climate. These tasks include the development of effective economic measures including tax benefits and various incentives, as well as the implementation of a legal framework that protects investors' interests and ensures the predictability of the investment environment. In addition, the state should actively engage with the "other side" to develop and implement effective administrative measures that simplify investment processes and improve the overall business climate. Attracting investment in Ukraine's energy sector also requires a systematic approach to stimulating innovation and developing new technologies. Creation of innovation clusters, support for research and development, and active implementation of advanced technologies should be among additional measures to attract investment and modernize energy infrastructure.

LITERATURE REVIEW

The topic of investment activity is systematically addressed both in the domestic and foreign scientific literature. Their research includes an analysis of the issues of stimulating investment activity, identifying key factors that determine successful investment, as

well as considering strategies to overcome various challenges in attracting financial resources, including in the energy sector. The topics of research range from the macroeconomic analysis at the level of the country as a whole to the micro level involving different segments. For example, W. Jiang and I. Martek [1] consider the energy sector as a primary driver of the economy for achieving sustainable development, especially for developing countries. The way for the energy sector growth is through foreign direct investment. Authors argue that the ability to attract investment depends on the political risk, and the impacts of specific political risk factors across different country environments are different. They concluded that risk of investment profile, law and order, religious tensions and corruption, gross domestic product, economic freedom and energy demand within host countries have a direct impact on foreign energy investment. Kuznyetsova et al. [2] noted that the public-private partnership should become an institutional tool for the formation and functioning of the business architecture of the national economy, based on the principles of social responsibility. M. L. Cunico, J. R. Flores and A. Vecchietti [3] noticed that medium/long-term investments in the energy sector are risky due to uncertainties including price volatility, unclear demands and indeterminate fossil reserve volumes. As such, they propose the usage of mathematical programming models to improve the decision-making process for planning investments in the energy sector in a medium time horizon.

It should also be mentioned that another topic of research is the investment opportunities in renewable energy. For example, A. Masini and E. Menichetti [4] consider that renewable energy technologies have many environmental, economic and social advantages, but at the same time account for a small fraction of the world's primary energy supply. They argue that one of the primary reasons is that private investments in the RE sector remain insufficient due to various non-financial factors that affect the decision to invest in renewables, particularly biased perceptions and preconceptions that favour status quo energy production models over innovative alternatives.

Another topic of discussion is attracting investment vs national security. For example, M. Rajavuori and K. Huhta [5] postulated that the global flows of foreign investment are increasingly curtailed by tightening investment screening policies by including new restrictions to protect sectors deemed sensitive to national or public security. The authors carried out a comparative appraisal of regulatory and administrative developments in the USA and the European Union and highlighted the most significant policy changes for the energy sector. They determined that investment screening posed new challenges for international energy investments to affect cross-border transactions in energy infrastructures, technology and the digitalization of the energy sector and concerns over the protection of personal data. Considering those implications, we should mention the research by B. Conrad and G. Kostka [6] that analyses recent trends in Chinese investment in the European energy sector. As these investments are growing, encompassing a wider number of countries and multiple energy sectors, in particular fossil, renewable energies and energy infrastructure, it is important to analyze their impact and risks. On the one hand, the authors pointed out substantial economic benefits and political partnerships from China's new role as a global investor. On the other hand, the authors argue that there are growing concerns among policymakers and business managers in Europe about unfair competition and economic risks as well as national security.

The topic of the public-private partnership in the energy sector is rather widespread as well. The research ranges from the general benefits of such a model to its implementation for different countries. N. Carbonara and R. Pellegrino [7] determined that the public sector uses public-private partnership private companies, the Energy Service Company (ESCO), to perform one or more activities related to the provision of energy services and stimulate private sector investments and promote energy efficiency. They pointed out the main issues to exist meaning the dilemma of equally sharing the benefits between the public and private parties to ensure a win-win condition, and the lack of adequate public procedures that support the selection of the most appropriate schema given certain circumstances and projects' characteristics.

L. Martiniello et al. [8] and Kuznyetsova et al. [9] noted that public-private partnerships are a well-known instrument used worldwide by public administration to build public infrastructure using private know-how and financial resources, and sharing risks. Recently, they have been used to develop energy efficiency projects between public and private sectors, but a successful project requires a contractual arrangement based on energy performance contracting (EPC) that balances the interests of the two parties.

The topic of investment in the critical infrastructure of Ukraine became especially widespread after the beginning of the invasion and its systematic destruction. For example, T. Zatonatskaya, O. Anisimova and D. Zatonatsky [10] research the global investment trends and their changes due to the war in Ukraine. D. Zatonatsky [11] postulated that critical infrastructure is important to the socio-economic development and national security of the state, especially the consideration of environmental, social and governmental criteria (ESG). The author emphasizes the importance of implementing the investment model of private-public partnership (PPP) based on ESG-investments as the PPP is an effective addition to the capital expenditures of the state and local budgets implemented by the state for the development of critical infrastructure.

The analysis of scientific works by both domestic and foreign economists shows that most of the discussions focus on the effective management of investment capital, instead of emphasizing the process of its active attraction. Existing research focuses on strategies for utilizing existing investment resources, leaving the issues related to the formation and stimulation of new investment inflows out of their attention.

AIMS AND OBJECTIVES

The purpose of the article is to study the institutional support for attracting and injecting investments in the energy sector of Ukraine.

METHODS

The methodology of the study is based on the method of dialectical logic; sociological method; method of theoretical generalization and comparison; abstract logical method; method of scientific generalization. The methodological basis, given the multidimensional nature of the subject of the study, also includes such methods as structural-functional and expert evaluation methods.

RESULTS

The features and limitations existing in modern Ukraine require the search for non-standard approaches and the development of a long-term strategy for working with investors and attracting investment in the country's energy sector. Rather recently, the Government of Ukraine adopted a fundamental act that determined the vector of development of the energy sector of Ukraine for the decades to come. This act was the Energy Strategy of Ukraine until 2050, approved by the Order of the Cabinet of Ministers of Ukraine No. 373-p dated 21.04.2023 [12]. Some provisions of the Energy Strategy are forecasts aimed at stimulating the modernization and renewal of specific elements of the country's energy sector. Thus, according to the baseline scenario, Ukraine should increase gas production to 20 billion cubic meters (by 8%) in 2024 and 2025, and by 7.5% in the following years, to 21 billion cubic meters. The optimistic scenario allows for the production of more than 26 billion cubic meters in 2050. It is assumed that the largest consumers of gas will remain power plants and CHPs (combined heat and power) that provide heat to the population. The areas related to the production of hydrogen, bioethanol [13] and biomethane are considered promising. It is worth mentioning that in April 2023, the first biomethane plant was launched in Ukraine. As we can see, the document envisages a significant increase in domestic energy production. At the same time, it emphasizes attracting investments, including the import of high-tech equipment, works and services in the field of energy use. It is planned that the attracted investments will be used not so much to restore and modernize existing energy facilities as to build new ones.

Implementing new technologies in Ukraine's energy sector will help realize the potential of the domestic energy sector and strengthen the competitive position of SE NNEGC Energoatom, Naftogaz of Ukraine, and NPC Ukrenergo in the European energy market. According to the Energy Strategy of Ukraine until 2050, financing for the construction, restoration and modernization of the energy infrastructure should be provided from external sources. Among other things, the mechanisms for attracting investment should include debt financing; private investment (additional issue of shares, attraction of strategic investors, etc.); public-private partnerships, etc. It is obvious that the planned projects in the energy sector cannot be implemented at the expense of the budget alone, within the timeframe set out in the Energy Strategy. The key partner of the state in the construction, restoration and modernization of the energy infrastructure should be private businesses: first of all, foreign corporations operating in the sector of generation and distribution of electricity and heat to end users, and secondly, the largest private consumers of electricity.

Ukraine's Energy Strategy until 2050 recognizes the fact that currently, in the medium and long term, the state does not have sufficient financial resources to carry out comprehensive work to significantly increase the level of energy generation in the country. In this regard, attracting private investors is becoming a vital step for the renewal and further development of the energy sector. The comprehension of the need to develop the energy sector implies that private companies should play a key role in achieving this goal. Moreover, the successful implementation of the large-scale modernization of Ukraine's energy sector requires innovative developments and experienced management and engineering personnel. In this regard, private energy companies from the EU market can make a significant contribution by providing not only financial support but also the intellectual resources necessary for the effective implementation of advanced technologies and management practices in Ukraine. The need for cooperation between the state and the private sector is emphasized not only in terms

of financing but also in gaining access to innovative solutions. The involvement of private investors will also contribute to the accelerated introduction of modern technologies in the energy sector, which, in turn, will increase the efficiency of energy infrastructure while reducing the negative impact on the environment. Thus, active cooperation between the state and private investors is a strategically important element in achieving a sustainable energy future for Ukraine.

The targeted use of the public-private partnership framework is an important factor for stimulating the restoration of energy infrastructure during martial law, and its modernization and development in the postwar period. Thus, in the future, most of the funds for the construction of new generating capacities, energy storage and demand management systems are planned to be raised from private investors in the form of direct equity participation in the energy companies that own the facility under construction or from credit organizations in the form of long-term project financing. For that reason, the implementation of public-private partnership mechanisms is becoming increasingly important among the ways to attract investment in the energy sector of Ukraine.

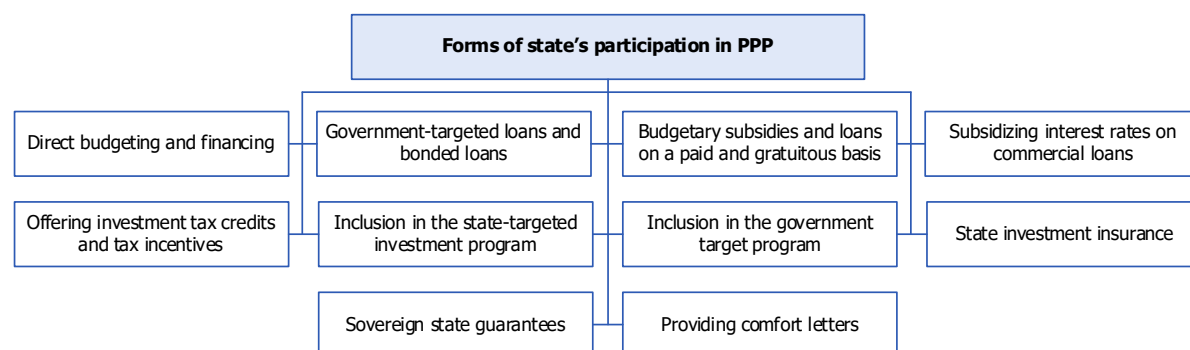
The implementation of public-private partnerships in the energy sector of Ukraine provides an opportunity to address a wide range of challenges faced by government agencies. First of all, this approach helps to cope with the lack of investment resources by ensuring the inflow of funds from the private sector. This is especially important for the implementation of large projects (which are the majority in the energy sector) that require significant financial investments. In addition, the use of public-private partnerships helps to solve the problem of the lack of effective project implementation mechanisms. Pooling resources from both public and private entities creates more efficient and sustainable project implementation models, contributing to their successful completion. In addition, the use of public-private partnerships is aimed at overcoming fragmentation in strategic planning. This helps to develop unified and long-term strategies that take into account both the interests of the state and private investors.

An important aspect is the ability to compensate underfunding of research and development. Public-private partnerships can become a catalyst for investment in innovative technologies, providing the necessary support for research and technical development of domestic innovations in the energy sector. On the other hand, the implementation of this partnership model is also aimed at minimizing key sectoral risks for investors. Also, by optimizing project approval processes, bureaucratic barriers and corruption risks are expected to be reduced.

Another important aspect is reducing the dependence on changes in the electricity market. The public-private partnership enables accurate forecasting of energy supplies, providing stability and predictability for investors. Finally, this model provides tools for addressing specialized, but extremely important issues faced by the domestic energy sector. They are related to the processing and disposal of radioactive waste, ensuring safe and efficient methods of handling these materials.

In summary, public-private partnership is a key tool for addressing numerous problems and challenges faced by the Ukrainian energy sector. The joint efforts of the state and the private sector can significantly accelerate its development and ensure a more sustainable and efficient energy future for our country.

In Ukraine, the majority of the energy sector is owned by the state, which determines a special role and certain forms of state participation in the public-private partnership (Figure 1).



The importance of public-private partnerships as an effective tool for attracting investment in the energy sector of Ukraine is due to several key features. First of all, it is worth noting the duration of such agreements. This aspect closely correlates with the payback period of key infrastructure facilities for the country, as well as with the achievement of a stable rate of return. The long-term nature of public-private partnerships gives confidence to investors in the stability and sustainability of the projects being implemented, which helps to attract billions of dollars in investments. The second key feature is the appropriate combination of forms of financing. The use of combined approaches that unite public resources and private investment ensures the formation of significant funds necessary for the modernization and construction of infrastructure facilities in the energy sector. This approach allows for the most efficient use of the attracted resources. The third feature is competition for obtaining a public-private partnership agreement. A private investor competes with other participants for the right to build, modernize infrastructure, and, subsequently, to manage the facility, and distribute and sell the energy produced. This competition contributes to better quality and efficiency of projects. The fourth feature is a clear division of rights and responsibilities between the partnership participants. State organizations, such as Energoatom, Naftogaz, Ukren-ergo, etc., usually define strategic goals, monitor their implementation, facilitate energy sales, etc. On the other hand, private partners engage in the operational management of the project, organize financing, and meet the stages and deadlines for modernization or construction. It is crucial for a private investor to participate in the construction and operation of energy infrastructure facilities in cooperation with the state, which, among other things, guarantees the allocation of the necessary administrative resources (passing regulatory authorities (services), certification, licensing, etc.) This allows the investor to recoup the investment and obtain the required rate of return within a reasonable period of time. Thus, there is every reason to believe that the use of public-private partnerships in the energy sector will attract investments from large investors who are interested not only in supplying energy to consumers in Ukraine but also in exporting it to the EU in the long term at a predictable cost. The fifth feature is the inherent need for a balanced distribution of investment and other risks among all project participants in the energy sector. This is achieved through establishing clear and mutually beneficial contracts that determine the obligations and responsibilities of the parties. The balancing principle contributes to the successful implementation of the project and strengthens trust between all its participants.

It should be emphasized that there are various forms of public-private partnership in Ukraine, which are characterized by diverse benefits for the state and private partners (Table 1).

Table 1. Forms of the public-private partnership. (Source: [14])

PPP form	Features	Benefits	
		For the private partner	For the state
Contracts	A contract for the supply of goods, performance of work or provision of services to meet state needs provided for in budget expenditures	- stable market and income; - costs and risks are fully borne by the state; - possible benefits and preferences; - prestige	- ownership remains in the hands of the state; - faster and more efficient implementation of important projects
Leasing agreement	A form of property contract in which public or municipal property is transferred to the temporary ownership and use of a private business for a rent payment	- no need to make a down payment; - different lease terms; - no repair and maintenance costs; - the possibility of buying out the leased property	- the state retains the right to dispose of the property; - lease payments from a private partner; - more efficient use of property
Concession (concession agreement)	Involvement of the private sector in the effective management of a public property or in the provision of services normally offered by the state on mutually beneficial terms	- receives part of the exclusive sovereign rights to the public property; - ownership of the products produced under the concession is transferred to the private partner; - long-term nature of the agreement	- the state is the full owner of the property; - payments from a private partner for the use of the public property; - long-term nature of the agreement
Production sharing agreement	An agreement under which the state grants a business entity exclusive rights specified in the agreement to conduct related work on a reimbursable basis and for a certain period of time	- possession of exclusive rights; - stable income; - possible tax benefits and preferences	- costs and risks are borne by the private partner; - payments for the use of exclusive rights
Joint ventures	A form of company organization that combines the capital of partners, including those belonging to different countries	- distribution of risks between the parties of the partnership; - joint financing; - possible benefits, preferences	- distribution of risks between the parties of the partnership; - joint financing; - attracting advanced technologies and management experience; - constant participation in the company's activities

However, promising forms of public-private partnership in Ukraine cannot be applied considering the ongoing hostilities, when energy infrastructure facilities are systematically attacked. The actual implementation of the projects related to the construction of energy infrastructure will be possible only after the war is over. It should be noted that capital investments in energy production, processing and supply amounted to UAH 49.7 billion in 2022. This is 49% lower than in 2021 which was UAH 97.04 billion. The most significant decline in investment was observed in the refining industry: in the production of petroleum products - by 89% (UAH 31.6 million vs. UAH 278.6 million in 2021); in the production of coke and coke products - by 88% (UAH 0.37 billion vs. UAH 3.13 billion). Among the extractive industries, the least investment was made in oil production - UAH 1.36 billion (-15%). UAH 4.64 billion was invested in natural gas production, which is 76% less than in 2021 (UAH 19.44 billion). In 2022, UAH 6.98 billion was invested in coal mining (-20%). At the same time, investments in ancillary services in the field of oil and natural gas production increased by 7% to UAH 0.55 billion [15] (Figure 2). At the same time, despite the situation inside the country, the importance of public-private partnership mechanisms for the development of the energy sector, for attracting capital investments and innovations, as well as for improving the efficiency of energy infrastructure management is recognized at all levels of governance. In fact, the development of various forms of public-private partnerships is considered an essential driver for the future existence of the entire energy sector of Ukraine.

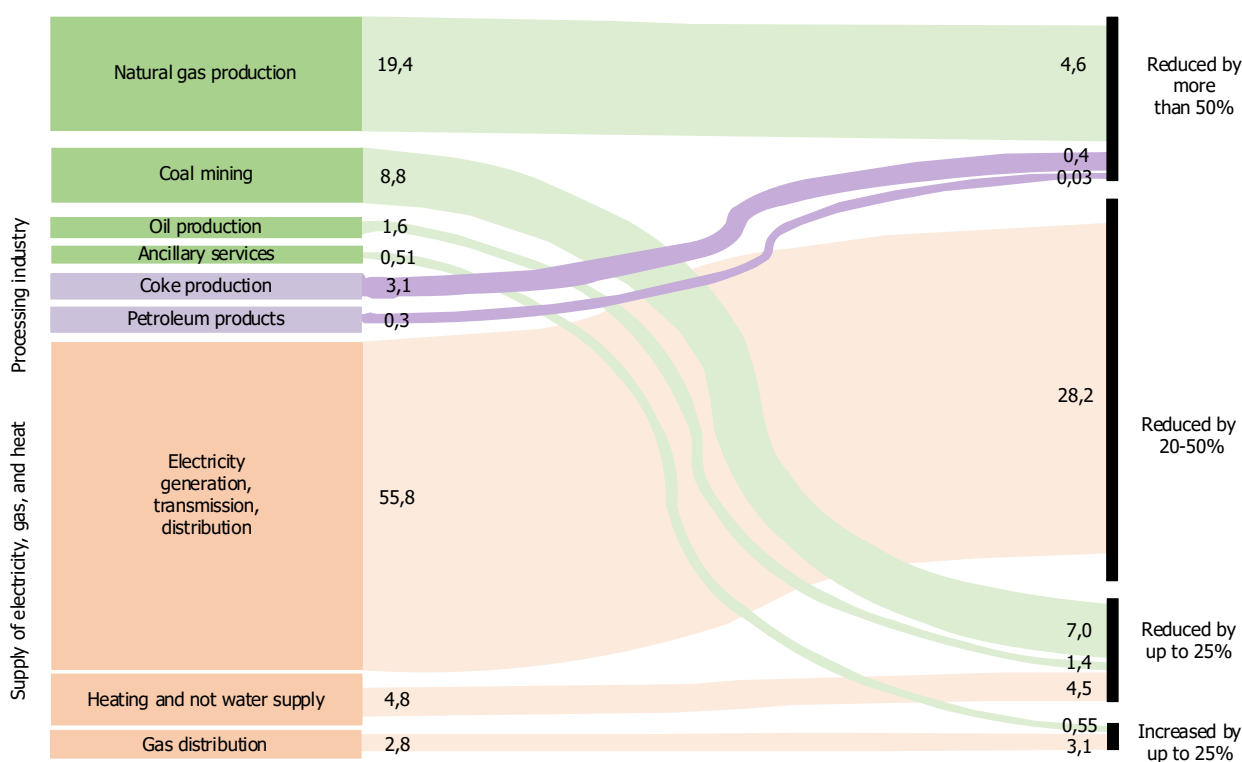


Figure 2. Capital investments in production, processing and supply of energy resources in 2021-2022, UAH billion. (Source: [16])

The evolution of mechanisms and principles of public-private partnership in the energy sector requires the formation of appropriate institutional frameworks. According to most experts, the intensification of the use of public-private partnership mechanisms and instruments depends on the development of institutions, the legislative framework, and experience in implementing large long-term projects. In all three of these areas, Ukraine has significant shortcomings.

At the moment, it is necessary to create effective working bodies in the key ministries engaged in public-private partnership responsible for general control and supervision over the implementation of the relevant contractual obligations of the state and the private sector, including organizing the verification of projects for the capability of their implementation, providing methodological assistance to project developers during their analysis, assisting the private sector in case of contradictions in the implementation of projects, etc. [17, p. 55] In this regard, it is important to take into account the need to update the fundamental legislative act regulating this system of relations. For example, the Law of Ukraine "On Public-Private Partnership" dated 01.07.2010 No. 2404-VI [18], which defines the organizational and legal framework for the interaction of public partners with private partners and the basic principles of public-private partnership on a contractual basis, was adopted in 2010. The norms of this act, which has been in force for more than 13 years, no longer adhere to the modern

realities and the role of public-private partnership as one of the promising methods of investment attraction. Our analysis shows that updating the basic law is a necessary step, without which it is impossible to harmoniously develop the regulatory framework for public-private partnerships in general, which, in turn, negatively affects the investment attractiveness of various sectors of Ukrainian industry, especially capital-intensive ones.

Even before the outbreak of full-scale war, there were multiple large-scale profitable energy and infrastructure projects in our country that could not be implemented for years. The problem with public-private partnerships in Ukraine is that the legislation does not ensure the balance of interests and responsibilities of the project parties. In addition, it does not regulate the procedure for allocating land plots for the implementation of public-private partnership projects. There is no system for managing the fiscal and financial risks of the partners [19], etc. Today, the mechanism of public-private partnership is regulated by several laws, including the Law of Ukraine "On Public-Private Partnership" dated 01.07.2010 No. 2404-VI [16], the Law of Ukraine "On Concession" dated 03.10.2019 No. 155-IX [20], the Law of Ukraine "On Features of Lease of State-Owned Fuel and Energy Facilities" dated 08.07.2011 No. 3687-VI [21], the Law of Ukraine "On Features of Lease of Communal Facilities in the Fields of Heat Supply, Water Supply and Sewerage" dated 21.10.2010 No. 2624-VI [22], etc. The provisions in the above-mentioned list of legislative acts create certain difficulties in the distribution of mechanisms for regulating procedures in the field of public-private partnerships in the energy sector. The imbalance of norms and the contradiction between provisions of the different acts complicate not only the organization but also the adequate implementation of regulatory tools for the effective management of partnership relations in the energy sector. The need to comply with the various laws and regulations governing the energy sector and public-private partnership requires not only a thorough analysis but also the development of adaptive mechanisms that can function in accordance with the dynamic nature of the energy sector and domestic realities. The abundance of legal provisions also emphasizes the priority of creating a governance system capable of taking into account the diversity of rules and ensuring their targeted implementation within the framework of public-private partnership procedures, which will contribute to the development of Ukraine's infrastructure, including energy.

Ukraine needs to comprehensively update the legislation governing the interaction of the state with private partners. The government has already taken some steps in this direction. The Ministry of Economy of Ukraine is actively involved in the work on the Draft Law "On Amendments to Certain Legislative Acts of Ukraine on Improving the Mechanism for Attracting Private Investment Using the Method of Public-Private Partnership to Accelerate the Restoration of War-Damaged Facilities and the Construction of New Facilities Related to the Post-War Restructuring of the Ukrainian Economy" dated 01.07.2022 No. 7508 [23], aimed at improving the mechanism for attracting private investment using public-private partnership to accelerate the restoration of war-damaged facilities and the construction of new facilities related to the post-war restructuring of the Ukrainian economy. The draft law includes the provisions for the implementation of an electronic procurement system for public-private partnership projects in accordance with the EU standards; full implementation of the type of public-private partnership projects based on payments from the budget, where the state does not transfer the risk of demand to the investor, but essentially pays for "infrastructure in instalments" for the post-war reconstruction of Ukraine; simplification of the procedure for preparing public-private partnership projects, especially those related to the restoration of infrastructure in the post-war period, new construction projects, and new buildings as well as "small" projects up to EUR 5.3 million; simplification of the general procedure for preparing public-private partnership projects at the state and local levels [24]. On October 6, 2022, the draft law was adopted as a basis and is currently being prepared for the second reading.

At present, efforts to attract investment in Ukraine's energy sector face a number of significant obstacles. One of the key problems is the lack of comprehensive interaction between the state and various domestic institutions that can participate in investments in the energy sector. The main focus of the government is on international financial organizations, foreign banks, management companies, holdings, etc. However, it should be taken into account that military aggression has a direct negative impact on the possibility of attracting investments in the energy sector. Practice shows that the availability of long-term financial resources in the country's economy is extremely important for the actual launch of projects related to the modernization of existing and construction of new energy infrastructure. The lack of financial resources within the country is one of the most important challenges that hinder the successful attraction of investments in the energy sector. The fewer resources the state can provide, the fewer opportunities it will have to manage the implemented project in the energy sector. In this case, the risk of complete loss of government control over the energy sector increases. In developed countries, pension funds and insurance companies also provide long-term investments in such projects that can generate stable cash flow. Such participants are able and willing to invest in projects with a payback period of 10 years or more. The key aspect here is the ability to predict a low (taking into account its payback) but long-term, stable and regular source of income. In Ukraine, there is virtually no pool of long-term investors with an investment horizon of more than 10

years. In addition, their increase is not expected considering ongoing hostilities, martial law, increased mobilization procedures, etc. In addition to the lack of stability, these factors create unfavourable conditions for the formation and development of long-term investment strategies, which, in turn, further exacerbates the problem of investing in the country's energy sector.

We believe that the government should implement a targeted policy to stimulate investment in the energy sector. This can be achieved by simplifying legislative regulation, as well as additional state subsidies for energy production by NPPs (nuclear power plants), TPPs (thermal power stations) and CHPs (combined heat and power), hydroelectric power plants and PHEs (pumped hydroelectric energy storages). It is important to maintain the practice of setting "green" tariffs for electricity produced from alternative sources, as this will help attract investment in the "green" energy sector. However, it should be noted that it is unreasonable to expect the cost of "green" energy to decrease to a level lower than traditional sources in the next 15-20 years. In order to comply with localization requirements, investors are forced to set up new businesses that will supply consumables for green energy meaning wind turbines, solar panels, batteries, inverters, etc. This, in turn, requires additional investment for each kilowatt-hour of electricity produced. Thus, to ensure a sustainable payback, it is necessary to take into account not only the generation facilities themselves but also the creation of related green energy sectors. Only a comprehensive approach by the state in this matter will facilitate the long-term involvement of foreign investors in the energy sector.

It is necessary to systematically move towards innovative development and modernization of our country's economy, with a focus on the energy sector, which occupies a central place in its structure. This step-by-step transition to high-quality institutional development of the economy should lead to a reduction in long-term risks and, consequently, an increase in investment attractiveness, as well as an increase in interest in energy sector projects. It is necessary to work actively to create a favourable environment for innovation and development in the energy sector. This includes strengthening institutions that ensure effective regulation and support for innovative ideas in the energy sector. In addition, stimulating and developing new technologies, energy-efficient solutions and sustainable approaches to energy production should be key elements of our innovation development strategy. Overcoming systemic constraints, improving the legal and regulatory environment, and actively engaging stakeholders in decision-making are all integral to sustainable innovation, which will ultimately improve the investment climate and, as a result, the demand for long-term projects in the energy sector.

DISCUSSION

Despite the obvious advantages of introducing a public-private partnership mechanism to support the development of the country's energy sector, certain issues and disadvantages that may arise as a result of the implementation of such projects should also be taken into consideration. It has been established that the main benefit of the PPP mechanism is the ability to gain quick access to resources that the state lacks to implement energy infrastructure projects at their own expense. However international experience shows that this can ultimately lead to the recipient country's dependence on foreign donors.

In particular, B. Conrad and G. Kostka [6] considered the possibility of such a situation on the example of Chinese investors' participation in public-private partnerships in the European energy market. This is due to the fact that countries that actively use the partnership mechanism allow foreigners to enter the domestic market and critical infrastructure facilities. Considering military operations in Ukraine, such a policy may be somewhat inappropriate, as it opens up opportunities for espionage, industrial sabotage, and creates additional threats to national security. This means that the process of screening and vetting potential private partners becomes a matter of national security, and investor screening becomes a mandatory requirement for further cooperation. It should be noted that for various reasons not all investors are ready for such scrutiny.

This problem arises not only in Ukraine. In particular, this was precisely what M. Rajavuori and K. Huhta [5] paid attention to, as they examined the impact of the screening process on the volume of international investment in public-private partnerships in the energy sector. It is emphasized that the screening process significantly slows down the inflow of foreign investment, and limits the scope of its application, as well as its volume. This is due to the fact that most countries in this case prioritize national security considerations over the rapid development of the sector.

This means that when promoting public-private partnerships, Ukraine should take these issues into account and create countermeasures to protect national interests beginning at the legislative level. Of course, the rapid rebuilding of Ukraine's energy sector is very important for the country's further economic development, but it should not pose a threat to national security. That is why it is vital to find a balance between attracting and encouraging external private partners and the necessary level of screening to protect the country from threats to national and economic security.

CONCLUSIONS

The above-mentioned factors emphasize the urgent need to use public-private partnership mechanisms to advance the development of Ukraine's energy sector. Implementation of the strategy to develop this key sector requires active involvement of not only financial resources of private businesses but also the attraction of innovations and formation of a highly effective managerial personnel reserve with experience in implementing large-scale projects. This is possible only in close cooperation with large private businesses, with the implementation of certain elements and mechanisms of public-private partnership in the sector. This is the only way the state will be able to adapt the energy sector to modern challenges and ensure its long-term sustainable development. In our opinion, only close, mutually beneficial coordination between the state and large private companies can make a significant contribution to the development of an energy sector capable of effectively integrating new technologies and management approaches.

ADDITIONAL INFORMATION

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Writing – review & editing: Maksym Ivanytskyi
Writing – original draft: Oksana Zhylynska, Maksym Ivanytskyi

REFERENCES

- Jiang, W., & Martek, I. (2021). Political risk analysis of foreign direct investment into the energy sector of developing countries. *Journal of Cleaner Production*, 302, 127023. <https://doi.org/10.1016/j.jclepro.2021.127023>
- Anzhela Kuznyetsova, Iryna Boiarko, Victoria Rudevska and Vladyslav Maslov (2022). Development of business architecture of the banking sector based on public-private partnership. *Banks and Bank Systems*, 17(2), 150-162. [https://doi.org/10.21511/bbs.17\(2\).2022.13](https://doi.org/10.21511/bbs.17(2).2022.13)
- Cunico, M. L., Flores, J. R., & Vecchiotti, A. (2017). Investment in the energy sector: An optimization model that contemplates several uncertain parameters. *Energy*, 138, 831-845. <https://doi.org/10.1016/j.energy.2017.07.103>
- Masini, A., & Menichetti, E. (2013). Investment decisions in the renewable energy sector: An analysis of non-financial drivers. *Technological Forecasting and Social Change*, 80(3), 510-524. <https://doi.org/10.1016/j.techfore.2012.08.003>
- Rajavuori, M., & Huhta, K. (2020). Investment screening: Implications for the energy sector and energy security. *Energy policy*, 144, 111646. <https://doi.org/10.1016/j.enpol.2020.111646>
- Conrad, B., & Kostka, G. (2017). Chinese investments in Europe's energy sector: Risks and opportunities? *Energy Policy*, 101, 644-648. <https://doi.org/10.1016/j.enpol.2016.12.016>
- Carbonara, N., & Pellegrino, R. (2018). Public-private partnerships for energy efficiency projects: A win-win model to choose the energy performance contracting structure. *Journal of Cleaner Production*, 170, 1064-1075. <https://doi.org/10.1016/j.jclepro.2017.09.151>
- Martiniello, L., Morea, D., Paolone, F., & Tiscini, R. (2020). Energy performance contracting and public-private partnership: How to share risks and balance benefits. *Energies*, 13(14), 3625. <https://doi.org/10.3390/en13143625>
- Kuznyetsova, A., Klipkova, O., & Maslov, V. (2022). Methodology of evaluation of performance of public-private partnership projects. *Financial and Credit Activity Problems of Theory and Practice*, 6(41), 339-349. <https://doi.org/10.18371/fcaptop.v6i41.251466>
- Zatonatskaya, T.G., Anisimova, O.Y., & Zatonatsky, D.A. (2022). Global trends in foreign direct investment and changes in markers under the influence of the Russian-Ukrainian war. In the monograph Edited by O. L. Galtsova

- Innovation and investment mechanism for ensuring the country's competitiveness: a collective monograph. Lviv-Torun: Liga-Press., 232 p. (pp. 158-176).
<https://doi.org/10.36059/978-966-397-255-8-9>.
11. Zatonatsky, D.A. (2023). Current trends in the formation of ESG mechanisms for investing in critical infrastructure. *Effective economy*, 12. <https://doi.org/10.32702/2307-2105.2023.12.31>
 12. On approval of the Energy Strategy of Ukraine for the period up to 2050: Order of the Cabinet of Ministers of Ukraine dated 21.04.2023 No. 373-p. <https://zakon.rada.gov.ua/laws/show/373-2023-%D1%80#Text>
 13. Davydenko, B., & Chaika, O. (2023, May 08). Very strategic plans. Gas consumption - 10 billion cubic meters, production - 21.5 billion cubic meters. Forbes got acquainted with a part of the «classified» energy strategy-2050. <https://forbes.ua/money/duzhe-strategichni-plani-spozhyvannya-gazu-10-mlrd-vidobutok-215-mlrd-kubiv-forbes-oznayomivsya-z-chastinoyu-zasekrechenoi-energostrategii-2050-08052023-13493>
 14. Ryazanova, N. O. (2018). Public-private partnership in the implementation of alternative energy projects. *Effective economy*, 8. <http://www.economy.nayka.com.ua/?op=1&z=7202>
 15. Capital investments in the energy sector fell by half in 2022 due to the war. (2023, December 08). <https://ua-energy.org/uk/posts/kapitalni-investytsii-v-enerhetyku-u-2022-rotsi-cherez-viynu-vpaly-napolovynu>
 16. Information portal of official data on the energy sector of Ukraine Energy Map. (2021, September 14). <https://map.ua-energy.org/uk/resources/312022cb-2edb-4f37-b326-6d5eff089353/>
 17. Manzhul, I. (2020). Public-private partnership in the energy sector. *Legal Bulletin*, 4, 51-57.
 18. On public-private partnership: Law of Ukraine of 01.07.2010 No. 2404-VI. <https://zakon.rada.gov.ua/laws/show/2404-17#Text>
 19. PPP in the energy sector: what are we waiting for in the legislative sphere. (2019, April 03). <https://equity.law/press-center/publications/757.html>
 20. On concession: Law of Ukraine of 03.10.2019 No. 155-IX. <https://zakon.rada.gov.ua/laws/show/155-IX>
 21. On Peculiarities of Lease of State-Owned Fuel and Energy Facilities: Law of Ukraine of 08.07.2011 No. 3687-VI. <https://zakon.rada.gov.ua/laws/show/3687-17>
 22. On Peculiarities of Lease Transfer of Objects in the Spheres of Heat Supply, Water Supply and Sewerage, which are in Communal Ownership: Law of Ukraine of 21.10.2010 No. 2624-VI. <https://zakon.rada.gov.ua/laws/show/2624-17#Text>
 23. On Amendments to Certain Legislative Acts of Ukraine on Improving the Mechanism for Attracting Private Investment Using the Mechanism of Public-Private Partnership to Accelerate the Restoration of War-Damaged Facilities and the Construction of New Facilities Related to the Post-War Restructuring of the Ukrainian Economy: Draft Law of 01.07.2022 No. 7508. <https://itd.rada.gov.ua/billInfo/Bills/Card/39902>
 24. On Amendments to Certain Legislative Acts of Ukraine on Improving the Mechanism for Attracting Private Investment Using the Mechanism of Public-Private Partnership to Accelerate the Restoration of War-Damaged Facilities and the Construction of New Facilities Related to the Post-War Reconstruction of the Ukrainian Economy: Explanatory Note to the Draft Law of Ukraine. <https://itd.rada.gov.ua/billInfo/Bills/Card/39902>

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ІНСТИТУЦІЙНЕ ЗАБЕЗПЕЧЕННЯ ЗАЛУЧЕННЯ ТА РЕАЛІЗАЦІЇ ІНВЕСТИЦІЙ В ЕНЕРГЕТИЧНИЙ СЕКТОР УКРАЇНИ

У статті аналізуються питання відповідності інституційного забезпечення залучення та реалізації інвестицій в енергетичний сектор України до сучасних реалій у яких опинилася країна. Наголошено, що основою подальшого залучення та реалізації інвестицій в енергетичний сектор є державно-приватне партнерство. Висвітлюються проблемні питання: залучення інвестицій в енергетичний сектор України; державно-приватного партнерства в енергетичному секторі – та визначаються шляхи їх розв'язання.

Обґрунтовано необхідність: удосконалення нормативно-правової бази, що регулює відносини в сфері державно-приватного партнерства; розвитку інституційної інфраструктури, яка підтримує державно-приватне партнерство; забезпечення гарантій захисту інтересів усіх сторін державно-приватного партнерства протягом усього життєвого циклу проекту.

Зроблено висновок, що залучення та реалізація інвестицій в енергетичний сектор можливі тільки в тісній кооперації з великим приватним бізнесом, з упровадженням у сектор елементів і механізмів державно-приватного партнерства. Тільки так енергетичний сектор України зможе адаптуватися до сучасних викликів, що забезпечить йому довгостроковий сталий розвиток.

Ключові слова: державне регулювання, державно-приватне партнерство, енергетичний сектор, Енергетична стратегія, інвестиції, інституційне забезпечення

JEL Класифікація: L00, P00, Q40