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ECONOMIC AND ENERGY SECURITY OF UKRAINE IN CONDITIONS OF WAR¹

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Economic and energy security has always played a big role in the well-being of the state, which is especially important in times of war. Developing mechanisms to counter internal and external threats, such as war, is a fundamental aspect of ensuring national security. The purpose of the study is to analyze the scale of threats in the economic and energy sectors of Ukraine and to explore the possibilities and ways of ensuring their stability in the conditions of war and in the post-war period. During the period of the full-scale invasion, the Russian Federation has already destroyed 30-40% of the sources of renewable energy in the southern and southeastern regions of Ukraine. On February 2023, Ukraine temporarily lost 44% of its nuclear generation, 75% of its thermal power plants capacity, and 33% of block cogeneration plants. Since the beginning of the war, 7,704 million Ukrainians have left abroad, millions of citizens have moved to Western Ukraine. The number of the working population is significantly reduced, due to which the purchasing power of the population has decreased by 12-15%, and at the same time the value of GDP has decreased and inflation has increased. Ensuring the independence of the national economy and energy industry, their stability and sustainability are one of the main functions of the state. Ukraine actively uses tools to ensure economic and energy security: maintaining unchanged tariffs for housing and communal services, partial tax reduction, fixing the exchange rate of the hryvnia and introducing currency restrictions, using renewable energy sources, etc. Public initiatives are also being formed to ensure security in the economic and energy sectors, which is an important factor for a successful outcome, because only the cooperation of the state, business and society as a whole will lead Ukraine to qualitative changes, including ensuring economic and energy security. PEST analysis demonstrates the existence of justified political, economic, social and technological prerequisites for the successful recovery of the national economy, taking into account the issues of economic and energy security. Specific, actionable recommendations on how to tackle economic security challenges directly during the war and in the post-war period were provided, including digitalization of public services, use of decarbonization strategies, and human capital development.

Key words: economic security, energy security, national economy, GDP, sustainable development.

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Introduction. The Russian-Ukrainian war, started by the Russian Federation in 2014, even then caused the first destabilizing processes in the economic and energy sectors. The economic decline was due to the loss of control over part of the territory of Ukraine and its potential due to Russia's occupation of the Crimea peninsula and hostilities in the Donetsk and Luhansk regions. During the last eight years, the Ukrainian economy, energy and society as a whole got used to the state of hybrid warfare, which became a significant factor in the negative changes in the development of Ukraine, namely: loss of technological and innovative potential, lack of investments, etc.

The open military attack of the Russian Federation on February 24, 2022, entails significant challenges, problems and threats to the development of Ukraine. Over the past year, the Ukrainian state has been affected by such negative consequences as:

- significant losses of human potential (civilian and military casualties, refugees, internally displaced persons losing their jobs);
- forced termination of business activity in the war zone, destruction of critical infrastructure;
- reduction of exports and disruption of logistics, especially maritime;
- the threat to the country's food and energy security due to constant rocket attacks and mining of agricultural fields;
- loss of tax revenues to the budget and budget deficit.

The problem of preventing threats to the country's economic and energy security caused by the military invasion of the Rus-

sian Federation, as well as the support of these spheres, is an extremely urgent issue not only in Ukraine but also in the world. This study is dedicated to the complex interplay between economic and energy security in Ukraine during the war, analyzing the impact of the war on energy infrastructure, supply chains, and the economy at large. Furthermore, it explores the imperative of energy diversification and the pressing need for international cooperation to support Ukraine's efforts to restore and fortify its economic and energy security in the aftermath of the war. By understanding these interconnections, we can shed light on the path towards a more stable and sustainable future for Ukraine, overcoming the challenges posed by the war and building resilience in the face of future uncertainties.

Analysis of recent research and publications. The first step is to conduct a bibliometric analysis of recent publications on the topic. It is performed with the use of the VOSViewer software, helping to create a cluster-based network map of keywords. Entering keywords "economic security", "energy security" in Scopus Toolkit, we found 115 results. (after the time frame 2017–2022 was chosen). Most research on the topic includes authors from China, the USA, France and Germany. The network map of keywords is demonstrated in Figure 1. This network map is divided into eight minor and four major clusters. They are as follows:

- cluster 1 – describes various aspects of energy policy, including renewable energy promotion, coal-to-gas switching, etc.;
- cluster 2 – describes the role of economic development and energy security in successful sustainability transition;

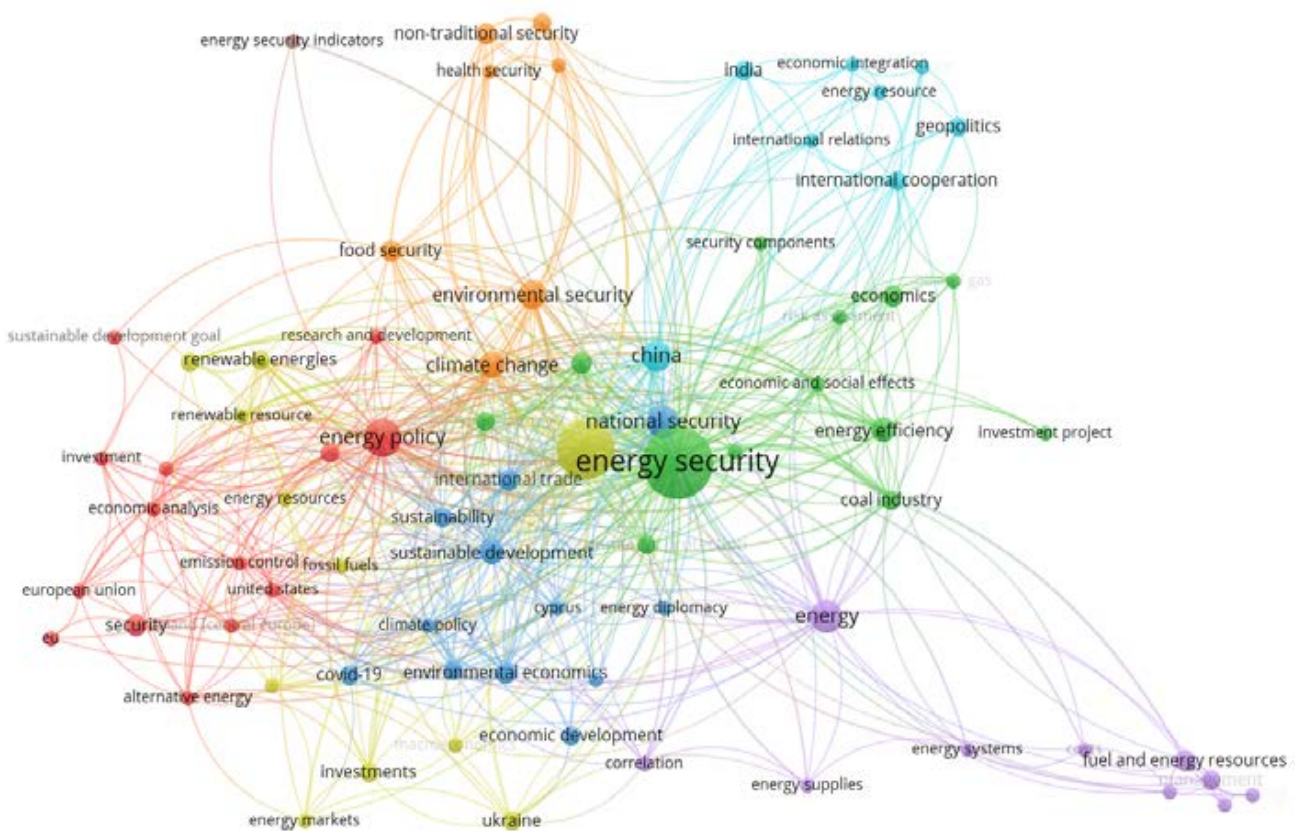


Figure 1 – The network map of keywords

– cluster 3 – describes the nexus “energy economy” and underlines the role of international cooperation in addressing possible challenges;

– cluster 4 – describes the role of economic and energy security for environmental preservation and climate change mitigation.

It was revealed that there were different research trends on this topic from 2010–2022. Most recent ones include the investigations of the links “sustainability-economy-energy”, Industry 4.0 and 5.0, as well as the role of geopolitical tensions in promoting overall economic and energy stability. The pandemic of COVID-19 and the Russian invasion of Ukraine make these study areas even more relevant and up-to-date.

Scientists have different views on the concepts of “economic security” and “energy security” because the concepts of economic and energy security are quite extensive. In general, the concepts of “economic security” and “ecological security” have undergone many reinterpretations in theory in connection with changes in the conditions of the external environment, society, and other factors affecting it.

Muntiyani believes that “economic security is such a state of the national economy that allows maintaining resistance to internal and external threats and is able to meet the needs of individuals, society, and states.” Instead, Stetsenko interprets the concept of economic security as “the state of the economy, which ensures a sufficient level of social, political, defence existence and progressive development of the security subject, invulnerability and independence of its economic interests in relation to possible external and internal threats and influences. Sokolenko and colleagues describe the role of economic security in environmental management of Ukrainian regions. The authors underline the significant level of interaction between economic and environmental indicators.

Speaking about the concept of energy security, Economic Development and Trade Ministry of Ukraine affirms that “this is such a state of the economy, which ensures the protection of national interests in the energy sector from existing and potential threats of an internal and external nature, makes it possible to meet the real needs for fuel and energy resources to ensure the livelihood of the population and the reliable functioning of the national economy in normal, emergency and martial law regimes”. And according to energy strategy of Ukraine for the period until 2030, “energy security is the achievement of a state of technically reliable, stable, economically efficient and environmentally acceptable supply of energy resources of the country’s economy and social sphere, as well as the creation of conditions for the formation and implementation of a policy of protection of national interests in the field of energy”. The role of energy security in sustainability transition is described by [21]. The scientists proved that effective financial institutions contribute to both energy security and SDG implementation.

Some authors discuss the interconnections between economic and energy security. For example, Li and Nguyen found that energy security is a driver for economic growth as well as an effective instrument for climate change mitigation [22]. Other authors proved that an access to reliable, affordable, and sustainable energy sources is critical for powering industries, transportation, and households. A stable and

secure energy supply fosters economic development by reducing production costs, enabling innovation, and attracting investments. Conversely, energy disruptions, supply shortages, or price spikes can diminish economic development, leading to inflation, reduced productivity, and financial instability [28]. Therefore, a well-protected and diversified energy infrastructure is vital to ensure a resilient economy and promote overall national security.

Dzwigol et al. proved that energy security is an important pillar of national security as an excessive dependence on energy resources imports may be a significant threat to it [23]. Energy security and national security are closely interconnected, with access to reliable and sufficient energy resources playing a crucial role in safeguarding a nation’s stability and prosperity. A nation’s ability to produce, import, and distribute energy resources efficiently not only sustains economic growth but also ensures the functionality of critical infrastructure, defence capabilities, and essential services [24]. By reducing dependence on foreign energy sources and diversifying the energy mix, countries can mitigate vulnerabilities to supply disruptions, price fluctuations, and geopolitical tensions, thus enhancing their overall resilience and sovereignty. Addressing energy security challenges through strategic planning and technological advancements becomes imperative for nations to protect their citizens, economic interests, and territorial integrity in an increasingly interconnected and volatile world. Some scientists investigated the role of geopolitics on economic and energy security. For example, Bompard and others revealed that countries with severe imports dependence should diversify their final energy mix and promote renewable energy [25]. Some researchers also underlined the role of renewables in geopolitical risks minimization [26]. Investigating the geopolitical implications of the invasion and its impact on global energy markets and international relations would provide valuable insights into the complex interplay between energy security, geopolitical tensions, and international sanctions.

The role of economic and energy security in sustainability promotion was discussed by [29-31]. Economic and energy security plays a significant role in facilitating a successful sustainability transition. As the world increasingly recognizes the urgent need to address climate change and reduce greenhouse gas emissions, transitioning to sustainable and renewable energy sources is imperative [29]. Economic stability is crucial for funding and implementing sustainable initiatives, such as investing in renewable energy infrastructure, research, and development. Moreover, a secure and diversified energy supply ensures resilience against external shocks and price fluctuations, which can hinder progress towards sustainability goals [30; 31].

The impact of the ongoing Russia-Ukraine war on the global and local economy and energy situation is complex. Environmental damages (ecosystem contamination, biodiversity loss, food inresilience) were described by [32]. In addition, the invasion has led to destruction of infrastructure, disruptions in trade, and loss of productivity in the affected regions [33]. Reconstruction costs are substantial, diverting resources from other developmental initiatives and slowing down overall economic growth.

The purpose of the research is to analyze the scale of threats in the economic and energy sectors of Ukraine and to explore the possibilities and ways of ensuring their stability in the conditions of war and in the post-war period.

The scientific novelty of this study is in the comprehensive and integrated approach to addressing the critical issues of economic and energy security. To the best of our knowledge, we will provide specific, actionable recommendations on how to tackle economic security challenges directly during the war and in the post-war period.

Research results. Since 2014, the war has been reducing Ukraine's potential and reducing the pace of its development. Unfortunately, in the conditions of rapid world development and globalization, Ukraine is losing resources, human capital, infrastructure, capacities and, as a result, its competitiveness. The same can be said about economic and energy security. Their symbiosis is a national complex of measures aimed at the permanent and stable development of the economic and energy spheres of the state. And an integral part of their provision is the mechanisms of countering internal and external threats, such as, for example, war. Ensuring the independence of the national economy and energy industry, their stability and sustainability is one of the main functions of the state, especially in wartime conditions.

The economic security of the country should be considered not only through the prism of the protection of national interests but also as an opportunity to prevent negative factors of influence and guarantee the country's well-being in the future, thanks to the use of tools of influence on economic processes.

Shlemko shares with internal and external energy security warehouses:

- internal components of economic security: raw materials and resources, energy, financial, military and economic, technological, food, social, demographic, ecological;
- foreign economic security: export and import [3]

And the components of economic security, according to the "Methodical recommendations for calculating the level of economic security of Ukraine", are: production, demographic, energy, foreign economic, investment and innovation, macroeconomic, food, social, and financial security [4]. Each indicator has its own weighting factor, which indicates the degree of contribution to ensuring the safety of each component (Table 1).

Table 1 – "The value of the weighting coefficients of the components of economic security" [4]

No	Components of economic security	The value of the weighting factor
1	Production safety	0.1218
2	Demographic security	0.0913
3	Energy security	0.1148
4	Foreign economic security	0.1095
5	Investment and innovation security	0.1089
6	Macroeconomic security	0.1224
7	Food safety	0.1007
8	Social security	0.1013
9	Financial security	0.1294

So, as we discovered, energy security is a component of the broader concept of "economic security."

During the war, the energy industry suffered some of the biggest destabilizing destructions. And although energy security is an economic component, energy security management requires taking into account various aspects of the country's life, namely: resource, technical, economic, environmental, organizational-administrative, managerial, social, innovative, political, geopolitical, security, etc. In addition, activities in the field of energy security can evolve significantly depending on the dynamics of socioeconomic and scientific and technological development, as well as external factors [6]. Due to constant massive attacks on the energy sector of Ukraine, significant changes in the principles of regulation and methods of energy use were forced.

Previously, renewable energy sources (RES) were mostly considered a tool to combat climate change and reduce carbon emissions. Since February 2022, for Ukraine, solar, wind, bio and hydro energy have become the guarantee of the country's energy security. According to the biggest Ukrainian energy company DTEK, due to the Russian invasion and constant massive attacks, electricity consumption decreased by more than 30% [10].

A few years before the full-scale invasion, Ukraine had a strong development in the field of energy. In 2019, Ukraine entered the TOP-10 countries in the world in terms of renewable energy development rates, and in 2020 – in the TOP-5 European countries in terms of solar energy development rates. In the same 2019, in the Climate scope rating by Bloomberg NEF [7], Ukraine took an honourable 8th place (rising from 63rd) among 104 countries in the world in terms of the country's investment attractiveness, precisely in terms of development of low-carbon energy sources and the construction of a "green" economy. In 2021, Ukraine was in 48th place in terms of the total investment potential of the state among 136 countries in the world in the Bloomberg NEF rating [8]. All this development was disfigured by Russia, destroying 30-40% of sources of alternative green energy in the southern and southeastern regions of Ukraine, as Prime Minister of Ukraine Denys Shmyhal noted.

RES is indeed a guarantee of Ukraine's energy security, both in the conditions of war and in the conditions of post-war reconstruction. Developing renewable energy sources can be considered one of the key ways to guarantee Ukraine's security. The non-governmental organization Center for Environmental Initiatives "Ekodiya" conducted a survey, according to which 88% of surveyed Ukrainians agree with the opinion that Ukraine has enough natural resources for the development of clean energy sources, and 78% of citizens support the development of RES. In addition, the majority of the population wants to reduce the use of fossil fuels and gradually close nuclear plants [12]. So, we can conclude that the majority of Ukrainians consider clean energy sources to be the key to ensuring energy security. And we think

As presented at the 2022 UN International Convention on Climate Change, military actions on the territory of Ukraine caused by Russia in 7 months of full-scale invasion resulted in 49 million tons of CO₂. At the time of writing, the

full-scale war has been going on for 15 months. Therefore, it can be assumed that CO₂ emissions are already approaching 100 million tons. And Prime Minister of Ukraine Denys Shmyhal noted that as of February 2023, Ukraine temporarily lost 44% of its nuclear generation, 75% of TPP capacity, and 33% of blocked CHP plants.

It is quite difficult to fully assess the energy and economic losses from the Russian invasion since the war is still ongoing. But when talking about economic security, one cannot fail to mention one of the most important resources – people. Ukraine is suffering great human losses: both civilians and military. Since the beginning of the war, 7,704 million Ukrainians have gone abroad [16]. Millions of citizens moved to Western Ukraine, and their number continues to increase. It is impossible to ignore the fact that due to the large migrations of Ukrainians, the number of the working population is significantly reduced, which affects the level of GDP and inflation. The purchasing power of the population also suffers; according to experts, it has decreased by at least 12–15% [17]. As of the end of April 2021, according to the State Statistics Service, the unemployment rate in Ukraine was 10.3% [15]. There are no data for the current period, as it is impossible to conduct a labour market survey by the state statistics authorities. However, according to the estimates of the Kyiv School of Economics, the unemployment rate in Ukraine increased to 27–30% during the war, and the employment rate fell from 56% to 40% [18]. In addition, according to the calculations of the International Labor Organization (ILO), almost 4.8 million jobs have been lost since the beginning of the war in Ukraine. Shows have almost tripled because at the beginning of 2021. The ILO estimated the number of unemployed in Ukraine at 1.5 million.

According to preliminary estimates of the National Bank of Ukraine, the economy of Ukraine shrank by approximately 30% precisely because of the full-scale invasion of the Russian Federation [11]. Part of the territory of Ukraine was occupied, enterprises suffered significant losses due to the destruction of infrastructure and damage to capacities, work interruptions and problems with logistics. For example, exporters lost part of their revenue due to limited access to the Black Sea port. And entrepreneurs focused on the domestic market suffered due to a drop in demand for products, disruption of supply chains and the cycle of production

processes. The decrease in demand for goods and services is caused by a decrease in the purchasing power of the population and the forced migration of millions of Ukrainians.

Despite all the obstacles, Ukrainian business, which is a significant part of the country's economy, has demonstrated resilience and the ability to adapt to crisis conditions such as war. Most enterprises have resumed their work, even in the frontline regions.

The National Bank of Ukraine predicts that real GDP will grow by 0.3% in 2023 [11], even with the war (Figure 2). This small growth testifies to the stability and endurance of the Ukrainian economy and predicts an even stronger development.

Speaking of inflation, in 2022, it was 26.6%, which is a fairly moderate value, given the full-scale war on the territory of the country. Numerical business expenses for energy carriers (generators, portable charging stations, power banks), delivery of raw materials and finished goods, repair work after rocket attacks – all this stimulated an increase in inflation. Instead, the country's government and the National Bank of Ukraine implemented measures to curb inflation, such as: maintaining unchanged tariffs for housing and communal services, partial tax reductions, fixing the hryvnia exchange rate, and introducing currency restrictions. Currently, the NBU predicts a steady slowdown in the inflation rate: 18.7% in 2023, 10.4% in 2024, and 6.7% in 2025 [11].

So, as we can see from the above facts, the economic and energy sectors have suffered a significant decline due to the Russian invasion of the territory of Ukraine. However, despite everything, the state is fighting both for its own sovereignty and for economic and energy security.

To ensure the economic security of Ukraine during the war, it is necessary to take both internal and external measures. As for domestic measures, the government should refrain from broad tax incentives, such as the introduction of a single tax with a low rate, and consider increasing it [10]. After all, limited budgetary resources are better spent on targeted support of enterprises that have suffered losses, work in critical industries and need relocation, as well as on support for IDPs and the unemployed. In addition, the state needs to repair logistics chains that have been damaged by the war, agree on alternative routes for exports and imports, and offer new routes for domestic transportation. Speaking of external measures, one of the most important tools for

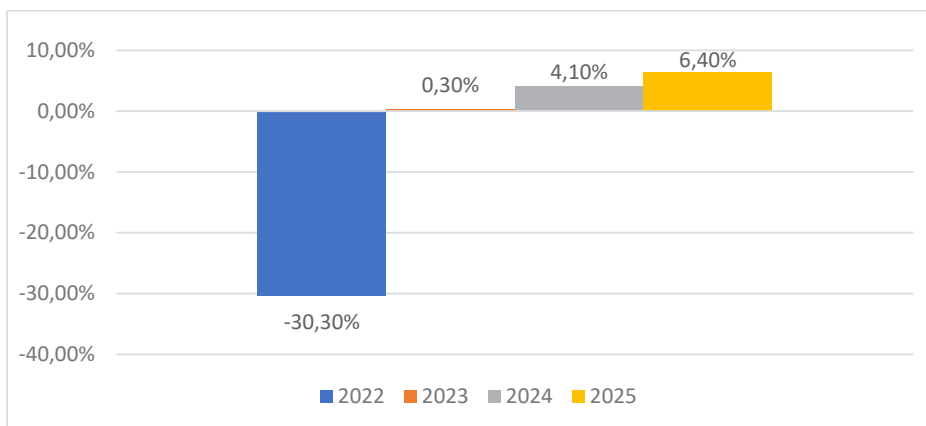


Figure 2 – Forecast of changes in real GDP in Ukraine

ensuring Ukraine's economic security is international support in overcoming the budget gap.

To understand the peculiarities of Ukraine's post-war recovery, it is important to conduct a PEST analysis to identify key factors affecting national development. Due to the significant level of uncertainty regarding the post-war future of Ukraine, our study will use a baseline scenario. The essence of the scenario envisages the recovery of the national economy at a sufficient pace (without an investment boom, but with a significant inflow of foreign investments, strengthening of domestic capital investments and a significant level of integration with the EU).

The results of the PEST analysis generally demonstrate the existence of justified political, economic, social and technological prerequisites for the successful recovery of the economy, taking into account the issues of economic and energy security. For stable economic security and for successful reconstruction of the economy in the post-war period, the following measures should be taken [10; 14]:

- development and implementation of a modern and innovative concept of reconstruction, taking into account the real geopolitical situation;
- implementation of the strategy for the restoration and development of Donbas, as well as the return of Crimea, developed by domestic scientists and the government;
- determination of priority areas of development that will ensure high competitiveness of goods and services on foreign markets, as well as state support for such areas;

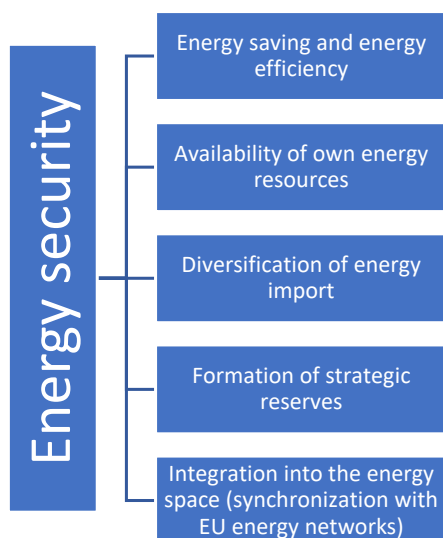


Figure 3 – Energy security concept [19]

- adoption of relevant laws regarding full employment, decent wages, increasing labour productivity, and price stability;
- development of mechanisms for the use of borrowed funds and their control;
- adoption of relevant laws on elimination and prevention of excessive concentration of production and capital, avoiding the formation of monopolies;
- prevention of corruption and introduction of economic mechanisms to combat it;
- development of effective social policy, policy of income growth and population consumption;
- creation of special economic zones and science parks;
- accession of Ukraine to the EU.

Economic security, as we noted above, cannot be ensured without energy security since energy security is a component of economic security. That is why the government should act comprehensively, etc. to ensure the implementation of national interests in the field of energy security [6]:

- consumer needs for energy and energy resources under acceptable economic (prices and tariffs) and environmental (emissions and discharges) conditions;
- stability of development and stability of functioning of the energy sector of Ukraine under normal conditions and crisis situations;
- competitiveness and openness of energy markets;
- the energy efficiency of the national economy;
- state sovereignty, in particular in the field of energy;
- diversification of sources of energy resources and energy technologies (when dependence on a single source does not exceed 30% of the total amount of resources or technology).

Investigating the role of energy governance and regulatory frameworks in the region and their impact on energy security, foreign investment, and sustainable energy development could reveal opportunities for strengthening energy sector resilience and sustainability. The energy security of the country can be formed according to a generally accepted scheme that comprehensively describes all important components of the energy sector (Figure 3).

Currently, there are already initiatives to plan the country's recovery; for example, the non-governmental organization "Ekodiya" offers a number of principles and steps for green post-war reconstruction [13]:

- permanent and systemic solutions, which should be based on a long-term vision and be relevant and effective for a long time;

Table 2 – PEST-analysis of Ukraine's post-war development (baseline scenario, created by authors)

Political factors	Economic factors
<ul style="list-style-type: none"> – A country with weak but democratic institutions – Relatively high level of corruption – Candidate for the EU membership – Constant changes in legislation 	<ul style="list-style-type: none"> – Damaged and destroyed infrastructure – Opportunities to attract FDI – Relatively stable banking system – Shadow economy
Social factors	Technological factors
<ul style="list-style-type: none"> – Necessity to bring people from abroad back home – Enough highly-educated professionals – Strong motivation to transform the country – Green trend 	<ul style="list-style-type: none"> – Digitalization trend – EU-Ukraine technological cooperation – Weak development of high-tech industries – Possible use of military technologies in a civil life

- transparency, community and public participation in decision-making;
- use of the best available technologies and practices, implementation of EU experience;
- development of cities and regions according to the goals of sustainable development;
- decarbonization and decentralization of energy;
- development of sustainable and decentralized agro-food systems;
- ensuring the preservation of ecosystems and natural wealth of Ukraine.

We believe that in order to ensure the economic and energy security of Ukraine, especially during the war, it is necessary to take a comprehensive approach to solving this issue. Both on the part of the government and on the part of public organizations, businesses and the general public, there should be appropriate actions to stimulate the economic sector and the development and popularization of RES, which in turn will lead, as a result, to an economically and energy-sustainable state.

Conclusions. The country's economic and energy security is one of the most important areas that ensure the quality of the country's life, especially in times of war. Energy security, as revealed in the work, is a structural part of a broader concept – economic security. However, their symbiosis can be called a complex of measures aimed at the permanent and stable development of the state. Mechanisms for countering internal and external threats are an integral part of ensuring economic and energy security. In the conditions of war, ensuring the independence of the national economy and energy, their stability and sustainability is one of the main functions of the state. The interdependence between economic and energy systems underscores the need for

a comprehensive and coordinated approach to tackle the challenges ahead. We found that to ensure Ukraine's economic security during the war, the state should refrain from broad tax breaks, improve logistics chains, offer new ways of internal transportation, and attract more international support to overcome the budget deficit. Measures that can stimulate the provision of energy security were also presented. Currently, there are many state and public initiatives in Ukraine to rebuild the Ukrainian economy and energy industry, but it is too early to talk about certain steps since the war is still ongoing, and no one can predict exactly what level of damage will be involved. Anyway, rebuilding and securing the energy sector must be a top priority for Ukraine's post-war recovery, as it directly impacts the nation's overall economic well-being and long-term resilience. International cooperation and support will also play a crucial role in helping Ukraine navigate the path towards sustainable economic and energy security after the war. By embracing innovation, sustainability, and inclusivity, we can build a more resilient, secure, and prosperous world for present and future generations, overcoming the challenges of the 21st century through collective commitment and determination.

Due to the fact that the war is still ongoing, it is important to continue research to cover the latest possible information and data. In our opinion, further research should also concentrate on other economy-related challenges (e.g., food crisis, increase in poverty and inequality) as well as non-economic threats (environmental degradation, healthcare problems, etc.). By addressing these and other research areas, scholars and policymakers can gain a deeper understanding of the long-term implications of wars on economic and non-economic situations and develop evidence-based strategies to build resilience and promote sustainable development.

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ЕКОНОМІЧНА ТА ЕНЕРГЕТИЧНА БЕЗПЕКА УКРАЇНИ В УМОВАХ ВІЙНИ

Економічна та енергетична безпека завжди відігравали велику роль в добробуті держави, особливо важливе в період війни. Невід'ємною частиною їх забезпечення є механізми протидії внутрішнім та зовнішнім загрозам, як, наприклад, війна. За період повномасштабного вторгнення РФ вже зруйнувала 30-40% джерел альтернативної зеленої енергії в південних та південно-східних регіонах України. Станом на лютий 2023 року Україна тимчасово втратила 44% атомної генерації, 75% потужності ТЕС та 33% блочних ТЕЦ. З початку війни 7.704 млн українців виїхали за кордон, мільйони громадян переїхали до Західної України. Кількість працюючого населення значно скорочується, через що знизилась купівельна спроможність населення на 12-15%, а разом із тим зменшилось значення ВВП та зросла інфляція. Забезпечення незалежності національної економіки та енергетики, їх стабільності та стійкості – одна із основних функцій держави. Саме тому, державою активно використовуються

інструменти забезпечення економічної та енергетичної безпеки: збереження незмінних тарифів на житлово-комунальні послуги, часткове зниження податків, фіксація обмінного курсу гривні та запровадження валютного обмеження, використання альтернативних джерел енергії тощо. Формуються також й громадські ініціативи щодо забезпечення безпеки в економічному та енергетичному секторах, що є важливим чинником успішного результату, адже тільки кооперація держави, бізнесу та суспільства в цілому приведе Україну до якісних змін, у тому числі забезпечення економічної та енергетичної безпеки.

Ключові слова: економічна безпека, енергетична безпека, національна економіка, ВВП, сталий розвиток.

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