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Копитко Марта Іванівна,
доктор економічних наук, доцент,
професор кафедри менеджменту
Львівського державного університету внутрішніх справ
e-mail: marta_kernytska@ukr.net
ORCID ID: 0000-0001-6598-3798

Завербний Андрій Степанович,
кандидат економічних наук, доцент,
доцент кафедри зовнішньоекономічної та митної діяльності
Національного університету «Львівська політехніка»
e-mail: anzas@i.ua
ORCID ID: 0000-0001-7307-536X

Левків Галина Ярославівна,
доктор економічних наук, доцент,
професор кафедри менеджменту
Львівського державного університету внутрішніх справ
e-mail: levguru81@meta.ua
ORCID ID: 0000-0002-5909-3390

ЕНЕРГЕТИЧНА КОМПОНЕНТА ЕКОНОМІЧНОЇ БЕЗПЕКИ УКРАЇНИ В УМОВАХ ЄВРОІНТЕГРАЦІЇ: ПРОБЛЕМИ ФІНАНСОВОГО ЗАБЕЗПЕЧЕННЯ

Анотація. Енергетична компонента (складова) економічної безпеки країни є важливою компонентою національної безпеки, оскільки впливає на рівень розвитку економіки. У статті виявлено чинники, що впливають на енергетичну компоненту економічної безпеки України в умовах євроінтеграції, проаналізовано тенденції фінансування енергетичного сектору, окреслено напрями його покращення в Україні. Методи дослідження: структурно-динамічний аналіз, методи групування та систематизування. Основними результатами дослідження є обґрунтування особливостей управління енергетичною діяльністю, що дає змогу вирішувати комплекс соціально-економічних завдань та створювати сприятливі умови для реформування економіки, її реструктуризації та досягнення допустимого рівня енергетичної безпеки. Саме управління енергетичною безпекою є головним елементом, від ефективності якого залежить розвиток економіки загалом, активізація підприємницької діяльності, розвиток суспільства тощо. Проведенні дослідження дозволяють зробити висновки, що в Україні є істотний рівень енергетичної небезпеки. Загрозливим для неї є збільшення зносу основних засобів, неефективність використання енергетичних ресурсів, відсутність ринкового ціноутворення тощо. Покращити енергетичну компоненту економічної безпеки України потрібно шляхом диверсифікації і видів енергетичних ресурсів для використання в економіці, і їх постачальників.

Ключові слова: енергетична безпека, економічна безпека, євроінтеграція

Kopytko Marta,
Doctor of Economics, Associate Professor,
Professor of Department of Management,
Lviv State University of Internal Affairs, Ukraine,
e-mail: marta_kernytska@ukr.net
ORCID ID: 0000-0001-6598-3798

Zaverbnyj Andriy,
PhD Economics, Associate Professor,
Lviv Polytechnic National University, Ukraine,
e-mail: anzas@i.ua
ORCID ID: 0000-0001-7307-536X

Levkiv Halyna,
Doctor of Economics, Associate Professor,
Professor of Department of Management,
Lviv State University of Internal Affairs, Ukraine,
e-mail: levguru81@meta.ua
ORCID ID: 0000-0002-5909-3390

ENERGY COMPONENT OF UKRAINE'S ECONOMIC SECURITY IN THE CONTEXT OF EURO INTEGRATION: PROBLEMS OF FINANCIAL PROVIDING

Abstract. The energy component of the country's economic security is extremely important, as it influences the level of economic development. The purpose of this paper is to identify factors influencing the energy component of Ukraine's economic security in the context of European integration, to analyze trends in financing the energy sector, and to find ways to improve it in Ukraine. Authors used such methods of research as: structural-dynamic analysis, methods of grouping and systematization, graphic. A sound and well-grounded management of energy activities will allow solving a range of socio-economic tasks and create favorable conditions for reforming the economy, restructuring it and achieving the acceptable level of energy security. It is the management of energy security that should become a key element, the effectiveness of which will depend on the development of the economy as a whole, the activation of entrepreneurship, the development of society, etc. The conducted studies allow us to conclude that Ukraine has a significant level of energy danger. The threat to it is an increase in the depreciation of fixed assets, inefficient use of energy resources, lack of market pricing, etc. The energy component of Ukraine's economic security needs to be improved by diversifying types of energy resources, as well as their suppliers. This paper analyzes the problems of financial provision of the energy component of economic security of Ukraine. Authors explored the energy component of Ukraine's economic security under the conditions of European integration. The main factors influencing the level of energy, economic security of Ukraine in the conditions of European integration are analyzed. This study also presents trends, structure and dynamics of investments into the energy sector of the world economy, as well as main investment scenarios. The ways of investment optimization in power engineering of Ukraine in the conditions of European integration are offered.

Key words: energy security, economic security, eurointegration

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Introduction

The energy component (constituent) of the country's economic security is extremely important and significant. This is evidenced by the fact that the UN Declaration of 2011 refers to «the need to expand access to reliable, low-cost, cost-effective, socially acceptable and environmentally friendly energy supplies and energy for sustainable development» [1].

Therefore, it is extremely important to research the problem of the energy component of Ukraine's economic security in terms of euro integration, its financial security.

Problems in providing energy security as one of the main components (constituents) of economic security, energy resources supply, management of the energy sector of the country's economy, as well as energy security were analyzed by domestic and foreign economists, among which it is expedient to allocate the scientific works of O. Amoshi, I. Vedina, P. Vozera, S. Yermilova, N. Ivashchuk, E. Krikavsky, O. Kuzmin, V. Matviishin, V. Mikitenko, R. Patori, N. Podolchak, C. Sokotenyuk, A. Tokunova, N. Chukhra, A. Shot, N. Shpak and others [2, 4].

The objective of this study is to identify factors influencing the energy component of Ukraine's economic security in the context of euro integration, to analyze trends in financing the energy sector, and find ways to improve it in Ukraine.

1. Research of prospects of development of the world power engineering

According to the IEA, according to the World Energy Outlook 2013, WEO 2013, in order to meet the global economy's demand for fuel and energy resources, their production by 2025–2035 will have to increase by about twice as compared to 1990. As demand for Electricity increases the need to put into operation new generating capacities will appear, taking into account the replacement of outdated power plants (about 40% of current capacity) [3, p. 5].

The presence of a favorable investment climate and effective market models will be crucial for the development and development of new technologies and for ensuring economic growth and enhancing energy and environmental efficiency [3, p. 5].

According to IEA analytical reviews, such as WEO-2013, WEO-2014, WEO-2015, 4 global projected scenarios for the development of world energy were presented:

– Current Policies Scenario,
– New Policies Scenario,
– 450 Scenario,
– Efficient World Scenario.

Meanwhile, in the works of IEA, the main provisions of such scenarios as «New policy», «450» are widely reflected. According to the «New Policy» scenario, the projected annual average global energy investment, as compared to the period of 2000–2013, will increase: 2014–2020 (1.44 times); 2021–2025 (1.43 times); 2026–2030 (1.49 times), 2031–2035 (as much as 1.6 times) [3, p. 18].

The total volume of investments in the world power industry for the period of 2014-2035 is forecasted in the amount of more than 40 trillion USD (Table 1), including over 40 trillion for the production and supply of energy, and more than 8 trillion for implementation of energy efficient technologies (Table 2). Accordingly, annual investments in covering world energy needs will approach 2000 billion USD at annual energy efficiency improvements in the amount of 400 billion USD [3, p. 18].

Table 1

Forecasted volumes of investments in production and supply of energy in the scenario of the New Policy 2014–2035

Types of energy resources	Volume, billion USD	Share of investments in this type of energy,%	Share, to total investments,%
Biofuels			
total	320	100,00	0,80
Natural gas			
total	8771	100,00	21,84
exploration and production	6138	69,98	15,28
distribution and transmission	1897	21,63	4,72
liquefied natural gas	736	8,39	1,83
Coal			
total	1034	100,00	2,57
mining	736	71,18	1,83
transportation	298	28,82	0,74
Electricity			
total	16370	100,00	40,76
transmission	1781	10,88	4,43
distribution	5030	30,73	12,52
power plants on fossil fuels	2635	16,10	6,56
nuclear power plants	1061	6,48	2,64
power plants on renewable energy sources	5857	35,78	14,58
Oil			
total	13671	34,04	34,04
exploration and production	11824	29,44	29,44
transportation	986	2,45	2,45
recycling	1401	3,49	3,49
Total	40165	100,00	100,00

Note: author's development based on [3, p. 18].

Table 2

Actual and forecasted volumes of investments in the development of energy in the world economy, EU

Indicators	Volumes of investments, billion USD					
	World			EU		
	Average annual investment	Amount of investments		Average annual investment	Amount of investments	
		New policy	450 Scenario		New policy	450 Scenario
	2000–13	2014–35 pp.	2014–35 pp.	2000–13 pp.	2014–35 pp.	2014–35 pp.
Total energy supply	1230	40165	39387	152	3214	3528

Oil	427	13671	11062	20	394	358
Exploration and production	320	11284	9014	13	242	223
Transport	54	986	902	1	15	13
Processing	52	1401	1146	6	136	122
Natural gas	252	8771	7457	30	531	453
Exploration and production	152	6138	5135	12	254	236
Transport	100	2633	2322	19	276	217
Coal	61	1034	690	3	19	16
Mining	31	736	508	1	12	9
Transport	30	298	181	2	7	7
Electricity	479	16370	19258	96	2227	2566
Fossil fuels	106	2635	2877	12	224	161
Coal	55	1528	1918	3	103	76
Natural gas	46	1054	930	9	117	82
Nuclear power engineering	8	1061	1722	1	166	242
PDE	153	5857	8809	53	1182	1513
Bio	17	639	892	8	160	178
Hydro	52	1507	2097	3	100	147
Wind	43	1989	3027	17	574	727
Sun	37	1276	1724	23	254	306
Transfer	48	1787	1586	4	139	153
Distribution	164	5030	4265	26	516	497
Biofuels	10	320	920	2	44	136
Total energy efficiency		8002	13531		2170	2998
Industry		739	1371		82	154
Energy-conscious		284	529		29	77
Not energy-consuming		455	842		53	77
Transport		4928	8120		1187	1560
Roads		4496	7267		1175	1535
Aviation, Navigation and Railways		432	854		13	25
Buildings		2334	4040		900	1285
Total		48167	52918		5384	6526

Note: author's development based on [3, p. 79].

That is, more than 40% of investments is spent on the electric power industry, as one of the most universal, mobile energy types (Table 1), of which almost one third is accounted for by power stations in renewable energy sources, which will indicate the development of this sphere of the world energy in future periods.

But the investments in developing technologies in 2015 increased by 1.04 times (Table 1), it is 10.4 billion USD (of which 12,5% is venture capital, which increased by 1,08 times in 2006–2015, 42,3% – government expenditures on research, which doubled, 45,2% – corporate expenses to research, development, which increased by as much as 1,5 times in 2006–2015.

Renewable energy investments and related technologies occupy the separate place (Table 3.)

Table 3

World Renewable Energy Investments and Technologies related to it, billion USD [5]

Indicators	Indicators for years								
	2007	2008	2009	2010	2011	2012	2013	2014	2015
Investments in developing technologies, including	8,3	10	11,1	11,6	12,4	12,1	12,6	10	10,4
venture capital	2,1	3,2	1,6	2,5	2,5	2,4	0,8	1	1,3
government expenditures on research	2,7	2,8	5,4	4,9	4,8	4,7	5,2	4,5	4,4

corporate research and development costs	3,5	4	4,1	4,2	5,1	5	6,6	4,5	4,7
investment in production equipment	25	17,6	15,8	16,6	12,4	5,4	11,5	17,8	14,9
investments in renewable energy projects	123,9	158,1	153,7	215,5	257,1	242,6	211,9	248,8	266,4

Note: author's development based on [5].

2. Research of the Ukrainian energy sector

With regard to the energy sector of Ukraine, it is advisable to dwell on the data presented in Table 4. for the last decade have been changed three times, but long-term planning, which only involves adjustment (regulation).

Table 4

Indicators of Ukraine's energy sector development in 2011–2015

Indicators	Indicators for years				
	2011	2012	2013	2014	2015
Consumption of fuel and energy resources, million tons	182,6	171,9	165,7	127,4	109,8
Rates of change to the previous year,%	101,4	94,1	96,4	76,9	86,1
Volume of capital investments for energy supply, mln. USA	1692,9	3176,7	3668,3	19125,6	977,44

Note: author's development based on [6, 7].

That is, each year in Ukraine the indicators of capital investment for energy supply are reduced, which negatively affects the level of energy (and hence the country's economic security).

The issue of energy security is considered at the highest level in Ukraine. The Supreme Rada of Ukraine adopted the amendments to the Law of Ukraine «On Alternative Energy Sources», which expanded the list of existing alternative sources, and thermal energy from heat pumps is classified as renewable energy [8].

The proposed changes will address a number of issues and will contribute to the implementation of Directive 2009/28 / EC.

There is no doubt that the regulation of the use of energy from the environment, the classification of these energy sources as «alternative» would contribute not only to «drawing up a report for the Energy Community on the progress made in promoting and using energy from renewable sources» but also resolving the issue of the use of appropriate equipment and technologies, privileges for import, production and use of appropriate heat engineering equipment, etc. [9, 10, 11].

As the research has shown, another factor that destructively affects the level of energy security in Ukraine is the degree of imperfection of the legislative framework, the variability of the base within a short period (only energy strategies

Regarding other factors that reduce the level of energy (and therefore, economic) security of Ukraine, the main among them, according to the analysis of scientific researches, is a sharp drop in the volume of production, production of own fuel and energy resources, reduction of financing of exploration works (due to their significant reduction), too high level of energy consumption of domestic products (low level of its competitiveness). High level of wear of fixed assets of power-generating, power supply enterprises of Ukraine, etc. should be added to it.

For 2013–2016, the level of instability of supplies (complete stop during certain periods) of imported fuel and energy resources (due to Russia's aggression) was added to this list.

The above factors have a significant level of threat to the energy security of Ukraine, its regions, business entities and citizens. It accordingly reduces the level of economic security of our country.

A sound and well-grounded management of energy activities will allow solving a range of socio-economic tasks and create favorable conditions for reforming the economy, restructuring it and achieving the acceptable level of energy security. It is the management of energy security that should become a key element, the effectiveness of which will depend on the development of the economy as a whole, the activation of entrepreneurship, the development of society, etc.

Conclusions

The conducted studies allow us to conclude that Ukraine has a significant level of energy danger.

The threat to it is an increase in the depreciation of fixed assets, inefficient use of energy resources, lack of market pricing, etc.

In our opinion, it is necessary to improve the energy component of Ukraine's economic security by diversifying both types of energy resources for use in the economy and their suppliers.

The analysis shows that the priorities of all industrialized countries are diversification as types of energy resources for use in the economy and their suppliers in order to increase the level of energy and, accordingly, economic and political security of our state in the future.

In particular, for EU countries, the priority is diversification, the search for new gas suppliers, as well as routes for the transportation of energy resources. For the USA, the basis is diversification of energy supplies for electricity generation. In China, projects have been developed that envisage diversification of energy imports (among them the main ones are oil and gas).

Ukraine needs to take the world experience by adapting it to the national conditions for the functioning of the energy market

The various risks faced by global energy companies require the latter to transform the business models used.

And within this transformation, among the potential solutions to problems, the improvement of the level of efficiency of investment management, operating expenses, and the like is a priority.

The development of the energy sector of Ukraine is possible only by providing an appropriate level of growth of investments in this branch.

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