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PRECONDITIONS AND PERSPECTIVES OF UKRAINIAN ENERGY MARKET DEVELOPMENT

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In this article it was examined the Ukrainian united energy system (UES) history formation, it was defined the preconditions of development. It was analyzed the global experience of the electricity markets functioning, also it is determined that the current trend of energy markets characterized by the monopolization and the deregulation. The rate of transition (evolution) from a monopoly to a competitive model of the electricity market is different for otherwise countries. In the context of global integration processes, Ukraine should develop and choose for themselves the electricity market model, according to its capacity and needs. The adopted Ukrainian Law, that regulates the functioning of the electricity market, involves the shift from model of «single buyer» to the model of bilateral contracts and balancing market.

Keywords: *energy balance, model, united power system (UPS), electricity market.*

Introduction. Social and economic stability of society, the quality ensuring and improving of life is largely depend on the reliability and efficiency of the energy market of Ukraine. Ukraine's power sector has sufficient power generation and advanced network for supply of electricity to consumers, but the current problems due to outdated technologies, depreciation of fixed assets, imperfect governance, transparent legal framework and others, bring it to the crisis. Thus, the urgent issue of reforming Ukraine's energy market based on liberalization in order to create a full and competitive environment, incentives for investment, improve the financial and economic performance. An important aspect in this regard is also the definition of the perspectives of the Ukrainianenergy market.

Analysis of recent researches and publications. In-depth study of energy systems, the reasons for their formation, the technological features of electricity as a commodity that determine the features of the energy companies studied in the works of Zerkalov D., Kuznetsova I., Gitelman L., Papkova B., O. Suhodolia, V. Tochilin, A. Tukenov, V. Fortov, I. Franchuk, V. Tsaplin and others. However, at the present stage of the electricity sector development in Ukraine as a whole and its individual

businesses in times of profound structural change, these issues, in our view, require in-depth study.

Previously unsettled problem constituent. Recently, because of the special importance of the energy problem in the world today, not only engineers but also economists, historians, philosophers began to refer to the chronological features of mastering the power of humanity. Given the increasing restrictions on the use of energy is not reproducible is imperative to investigate further the development of society. Energy sector and in particular the activities of energy companies is an important link in the chain of development and functioning of the economy of any country in the world. At the same time, it is characterized by considerable complexity, riskiness and social responsibility. In this regard, the state energy strategy should focus on finding the optimal value process of liberalization of the electricity market of Ukraine and state involvement in the regulation of the market.

Main purpose of the article. In the process of writing a scientific article were asked the following research objectives as: the definition of the prerequisites of a modern unified power system of Ukraine by studying the history of its development; analysis of the global experience of the electricity markets for proposals to change the model of the market in Ukraine.

Results and discussions. Unified Energy System (UES) is a rational structure of electricity production and use in large areas where located various types of the power source, with centralized operational and technological management [1].

The law determines the IPS of Ukraine as "the totality of power, electrical and heating systems and other energy facilities, which share a common mode of production, transmission and distribution of electricity and heat at the centralized management of this regime" [2]. The components of the electric power system shown in figure 1.

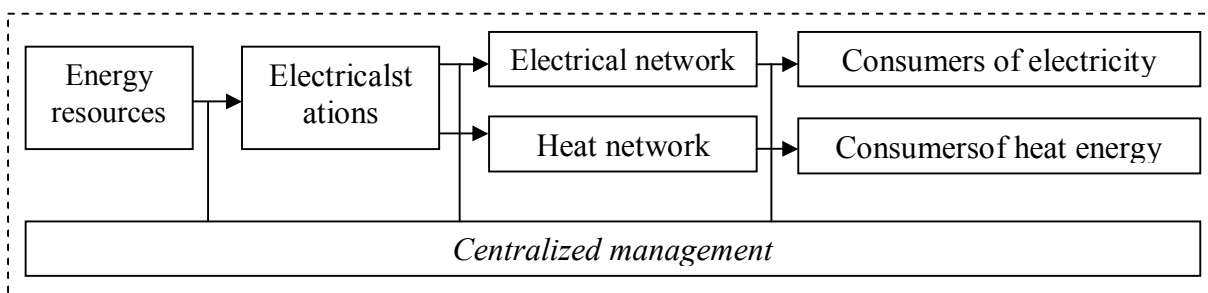


Figure 1. Subjects of electricity system

In general, the UPS is formed by the "fusion" of local energy systems in a particular area. In the territory of modern Ukraine in the first half of XX century it was formed 5 local grids: Donbasenergo (1926); Kievenergo, Krymenergo and grid of Kharkov city (1930); Dneprenergo (1931). The first step to creating IPS was the

construction of the transmission line (TL) 220 kV length of 87 km between Donbasenergo and Dneprenergo.

In 1978, development of the internal electrical grid UES of Ukraine allowed to include it in the Western grid parallel operation with the rest of the UES of USSR.

By this time, Ukraine has taken, on the UES world energy map, a strong place of powerful system with an installed capacity – 55.4 GW, the electricity in the amount of 296.3 billion kW·h, the amount of power consumption – 268.2 billion kW·h and exports – 28.1 billion kW·h. After 1990 it was started a period of deep recession in the development of Ukraine electric power industry [1].

Today, UPS Ukraine includes 4 nuclear power plants (15 operating reactors), 14 thermal power plants, 7 hydroelectric power stations, wind electricity power stations and others; 23 thousand km of main and cross-border electrical networks and 996 thousand km of distribution networks. The installed capacity of power plants in 2012 is 53.8 GW (thermal – 57%, nuclear power – 25.7%, hydro – 10.2%, other – 7.1%).

The operator of the Wholesale Electricity Market (WEM) of Ukraine is State Enterprise "Energorynok" actively try to improve the relations with the neighboring states enterprises that are responsible for providing parallel operation of power systems. The existing contractual framework to ensure parallel operation of power grids with Ukrainian neighbors in need of modernization, based on practical experience and in order to realize the benefits of parallel operation of systems and due to changes in the Ukraine and neighboring countries associated with the reform of energy markets [3].

The role and place of Ukrainian energy sector on the world stage can be determined by comparing key indicators of energy balance (Table 1).

Analyzing and comparing the statistics of the energy balance of Ukraine according to the world, EU, USA and Russia, we can conclude that the Ukrainian energy sector is "weaker". However, it has considerable potential in this area, the development of which would lead to significant positive changes. In addition, comparison data were taken in Bulgaria – close neighbor of Ukraine and new member of EU – note that the energy sector of Bulgaria lags far behind Ukrainian and trying to modernize and liberalize its energy market in accordance with EU Directives.

Modern trends in energy markets characterized by monopolization and deregulation. The question is only in the pace of its implementation and in depth market reforms. The rate of transition (evolution) from a monopoly to a competitive model of the electricity market is different for different countries. In addition, there are various models of market functioning, which differ not only in degree of competition, but the terms of promiscuity models together. None of the electricity

market models does not exist in practice in its purest form. Country select of a electricity market model depends on many factors – both managed and unmanaged.

Table 1

Key indicators of energy balance, 2012

Indicators	Countries	Production	% of world production	Consumption	% of worldconsumption
<i>Petroleum</i> (million tons)	World	4015	100	3944	100
	US	820	20,42	739	18,74
	EU	621	15,47	511	12,96
	Russia	260	6,48	132	3,35
	Bulgaria	0,024	0,00	-	-
	Ukraine	5	0,12	12	0,30
<i>NaturalGas</i> (billion cubic m)	World	3455	100	3466	100
	US	684	19,80	721	20,80
	EU	172	4,98	472	13,62
	Russia	659	19,07	473	13,65
	Bulgaria	3,08	0,09	2,70	0,08
	Ukraine	20	0,58	53	1,53
<i>Coal</i> (million tons)	World	7790	100	7356	100
	US	932	11,96	808	10,98
	EU	590	7,57	801	10,89
	Russia	354	4,54	196	2,66
	Bulgaria	33,4	0,43	42	0,57
	Ukraine	64	0,82	77	1,05
<i>Electricity</i> (TWh)	World	22619	100	19462	100
	US	4295	18,99	3798	19,51
	EU	3256	14,39	2863	14,71
	Russia	1064	4,70	878	4,51
	Bulgaria	47,3	0,21	29,2	0,15
	Ukraine	199	0,88	151	0,78
<i>Energy – total</i> (Mtoe)	World	13399	100	13157	100
	US	1826	13,63	2152	16,36
	EU	796	5,94	1643	12,49
	Russia	1325	9,89	725	5,51
	Bulgaria	10,57 (2010)	0,08	17,86 (2010)	0,14
	Ukraine	81	0,61	133	1,01

Compiled by the author [4-6]

In electricity sector of many countries still remain vertically integrated state-owned monopoly companies. Developed countries such as France and Japan do not make rapid reform of the electricity sector. Also in the U.S. , half of the states, where electricity prices are relatively low, with no hurry reforms, keeping the regulated

monopoly. They limited the access to electricity independent power producers with providing separate cost accounting for areas of generation, transmission, distribution and sale of electricity [7].

In the context of global integration processes Ukraine should develop and choose for themselves (according to its capacity and needs) electricity market model. Conceptual decision to shift from the "single buyer" model to bilateral agreements and balancing market (DDBR) was adopted by the Cabinet of Ministers in 2002 at the beginning of the privatization of generating companies in Ukraine. Legislation implementing the decision has become only recently – by the Law of Ukraine "On Principles of the electricity market of Ukraine" dated 24.10.2013 [8]. The transition to the new electricity market model in Ukraine will result in significant changes in comprehensive legislation relating to this area; in organizational mechanism functioning electricity; the regulation and management of IPS of Ukraine and others. In addition, the direction of development cooperation of Ukraine to the EU or Russia will also identify additional vectors of changes in the energy sector.

Conclusions and further researches directions. The modern world has a way of time characterized by the rapid development of globalization processes, which aim to achieve a safe, stable, predictable state of the economy and society around the world. Strategically important role in this process belongs to a reliable power supply. In this area around the UPS merger goes through appropriate transnational and transcontinental grids. In the context of global integration of energy processes Ukraine has unique geographical and geopolitical position between Europe and Asia, providing very favorable conditions for the establishment of transit routes for electricity power.

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**ПЕРЕДУМОВИ ТА ПЕРСПЕКТИВИ РОЗВИТКУ
ЕНЕРГЕТИЧНОГО РИНКУ УКРАЇНИ**

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В даній статті було розглянуто історію становлення 'єдиної енергетичної системи (ОЕС) України, визначено передумови її розвитку. Проаналізовано світовий досвід функціонування ринків електроенергії, визначено, що сучасна тенденція розвитку енергетичних ринків характеризується демонополізацією та дерегуляцією. Швидкість процесів переходу (еволюції) від монопольної до конкурентної моделі функціонування ринку електроенергії є відмінними для різних країн світу. В контексті світових інтеграційних процесів Україна має розвиватися та обрати для себе, відповідну до її можливостей та потреб, модель ринку електроенергії. Прийнятий Закон України, що регламентує функціонування ринку електроенергії передбачає перехід від моделі «єдиного покупця» до моделі двосторонніх договорів та балансуючого ринку.

Ключові слова: енергетичний баланс, модель, об'єднана енергетична система (ОЕС), ринок електроенергії.

**ПРЕДПОСЫЛКИ И ПЕРСПЕКТИВЫ РАЗВИТИЯ
ЭНЕРГЕТИЧЕСКОГО РЫНКА УКРАИНЫ**

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В данной статье была рассмотрена история становления объединенной энергетической системы (ОЭС) Украины, определены предпосылки ее развития. Проанализирован мировой опыт функционирования рынков электроэнергетики, определено, что современная тенденция развития энергетических рынков характеризуется демонополизацией и дерегулированием. Скорость процессов перехода (эволюции) от монопольной к конкурентной модели функционирования рынка электроэнергии являются отличными для разных стран мира. В контексте мировых интеграционных процессов Украина должна развиваться и выбрать для себя, соответствующую ее возможностям и потребностям, модель рынка электроэнергии. Принятый Закон Украины, регламентирующий функционирование рынка электроэнергии, предусматривает переход от модели «единого покупателя» к модели двусторонних договоров и балансирующего рынка.

Ключевые слова: энергетический баланс, модель, объединенная энергетическая система (ОЭС), рынок электроэнергетики.