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<https://doi.org/10.61796/ejcbt.v1i3.402>**PROBLEMS IN THE MANAGEMENT OF THE ELECTRIC
POWER SECTOR IN UZBEKISTAN AND WAYS TO
ELIMINATE THEM****Saidov Mash'al Samadovich**

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Abstract: In this scientific article, the problems in the management of the electricity network, the reforms carried out by the state and their results, the existing problems in the network, the development of electricity by countries of the world, the determination of the features of assessing the effectiveness of Management in the electric power network, the problems in the management of the electric power

Keywords: electric energy, production of electricity energy of the fuel and energy network, energy resources, energy facilities, renewable energy sources management efficiency.

This is an open-access article under the [CC-BY 4.0](https://creativecommons.org/licenses/by/4.0/) license**Introduction**

The economy of the countries of the world today is going through a rather difficult period. The main reason for this is the energy crisis that is taking place in the world. Countries on earth can be divided into two groups. To the first group – the energy – producing countries, to the second group – the countries that buy the energy produced. Because on earth, energy sources are unevenly distributed. This directly affects the state of the energy sector. For this reason, states seek to provide themselves with reliable energy sources: to establish control over traditional energy resources (including the application of political and economic pressure measures); through the introduction of advanced technologies for the development and processing of traditional hydrocarbon resources; the use of renewable energy resources in Real sectors of the economy, that is, industrial enterprises of various volumes.

One of the main areas in the development of the country's economy is the field of electricity. The promising development of the state is always evaluated according to its energy resources and potential for generating electricity.

Focusing on the economy of countries with developed economies, including the United States, European countries, China, Japan, South Korea, Singapore and Malaysia, we can see that they have a power generation sector based on modern innovation technologies.

In the sustainable development of the country's economy, there is always a need for uninterrupted (regular) and quality electricity supply. In particular, the simultaneous supply of electricity to the production, service and infrastructure sectors is a complex technological process. Because the demand and supply of electricity occurs at the same time. There is always an increasing

demand for electricity from all sectors and sectors, but the possibility of regularly supplying all sectors and sectors with electricity at the same time creates complications. The growing demand for electricity in countries around the world is causing global problems in the economies of countries.

In the economy of any country, the demand for electricity always increases. The higher the demand for electricity, the higher its cost. Most of the energy resources used in electricity generation are non-renewable resources. This affects the cost of products and services. The growing demand in the economy is always met through high-limit prices. Economic efficiency is achieved by constantly shaping the competitive environment in the field of electricity, developing measures aimed at reducing prices, establishing energy production using modern technologies, using energy-efficient technologies in industries, modernizing energy production stations, reducing production costs using modern technologies and renewable energy sources

Analysis of thematic literature

Currently, the energy sector is a provider of electricity, which is considered as the main raw material for the sustainably functioning sectors of the country's economy. As a result of structural changes, privatization and liberalization in the industry, as a result of decisions and decrees adopted in recent years, the production structures of the power and energy sector are experiencing a period of adaptation mainly to market methods of management.

In order to rapidly develop all sectors and sectors of the economy, the decree of the president of the Republic of Uzbekistan PF-5646 of February 1, 2019 "on measures to radically improve the fuel and energy sector of the Republic of Uzbekistan" was adopted in order to increase the volume of foreign investment in the Republic, increase the business capacity of the In order to transfer the electricity sector to organizations independent of each other, the decree of the president of the Republic of Uzbekistan dated March 27, 2019 PQ-4249 "on the strategy for further development and reform of the electric power sector in the Republic of Uzbekistan" was adopted [2]. According to the results of this decision, OJSC Uzbekenergo was liquidated and entrusted to JSC thermal power plant, which includes 6 thermal power plants and 3 thermal power centers, JSC Uzbekistan national power networks for transmission of electricity through main lines and JSC regional power networks for transmission of electricity to consumers and economy networks through regional networks.

The president of the Republic of Uzbekistan, with the participation of the World Bank, adopted a resolution "on the implementation of the project for the transformation of the electric power sector and sustainable power transmission and measures to develop the system of Republican main power networks and increase its efficiency"[3]. In this decision, 330 million of the International Development Association of investment projects "introduction of automated system of management of JSC resources of national power networks of Uzbekistan (ERP)". Preferential and \$ 50 million equivalent to US dollars. US dollar non-preferential loans, Green Climate Fund's US \$ 43 million preferential loan, and \$ 4 million. Funding is provided at grant funds equivalent to the US dollar.

All types of energy resources are the result of natural transformation of solar energy. Coal, oil, natural gas, peat, combustible mountainjins and firewood are reserves of radiant energy of the Sun obtained and modified by plants [4].

The countries of the world are divided into the following groups for the production of electricity:

- the countries of the first group include, mainly, the countries of the Russian Federation, the United States and western Europe, which generate electricity through thermal power plants. They mainly use natural gas, fuel oil and coal in the production of electricity;
- the second group includes the countries of their country - China, Australia, Mexico, Romania, The Netherlands and Poland, which mainly use natural gas in the production of electricity;
- the third group of countries - Honduras, Colombia, Kenya, Brazil, New Zealand, Austria and Paraguay. They generate, mainly, electricity through GES (hydroelectric plants).
- the countries of the fourth group-Japan, France and Belgium-include. They generate electricity mainly using atomic energy.

Today, the countries of China, the United States, the Russian Federation and Brazil are leading in the production of electricity in the world.

There are problems with the extraction, processing and consumption of each energy source. While energy security is a problem all over the world, increased competition in the world market can, as a rule, threaten energy security in certain regions, states [5].

In the context of increasing demand for global energy in the process of industrialization, sustainable development cannot be achieved without renewable energy sources. According to the U.S. Department of energy, the world's energy consumption was 13.8 billion in 2012. t.n.e.ga in the case of a tie, the rate increased by an average annual rate of 1.4 percent in 2012-2040 to 20.5 billion in 2040. t.n.e.ga it is projected to be [6].

The indicated level of electricity consumption corresponds to the industrial development strategy developed by the Center for effective economic policy. According to the experience of leading countries, an increase in the share of industry in Uzbekistan from 20 percent to 35-45 percent is planned [7].

The management of the electricity sector in different countries is distinguished by the variety of Public Administration bodies. At the same time, in most cases, an independent body is formed, which is responsible for the implementation of reforms and the normal functioning of the market [8].

The experience of foreign countries shows that most often, the results of competition between energy companies are horizontal and vertical integrations, their union in different forms [9]. Large producers and electricity consumers are being formed on transnational trading platforms that unite not only within the same country, but also neighboring countries [10].

State management of the fuel and energy sector is considered necessary regardless of the state system and type of Economy [11].

Energy security is associated with the energetic independence of the state of its subject or region, which is primarily a political problem. In the energy sector, the Sustainable Development and stability of the producing states are important in ensuring economic energy security [12].

It can be as important for energy exporting countries as ensuring the safety of demand, the reliability and security of supply. In these countries, the economy and the state budget are highly dependent on revenues from energy exports. For example, in the oil industry, Saudi Arabia accounts for 42% of GDP, 87% of budget revenues, and 90% of exports [13].

The group of countries for the production of electricity in the world is located as follows: South America, Western Europe, Asia, CIS countries, Latin America, Africa, Australia. While developed countries produce 80% of the total electricity, developing countries make up 20% [14].

It is considered to have long years of experience in the production of electricity in our country, transmission through main lines and delivery through regional electricity networks. Therefore, in recent years, comprehensive reforms have been carried out on the provision of regular energy to all sectors of the country's economy.

Methods

The article makes extensive use of methods of scientific study, comparative comparison, study and economic comparison and analysis of existing problems in the management of the electric power sector in our country, logical thinking, scientific abstraction, analysis and synthesis, induction and deduction.

Results and Discussion

Ways to overcome existing problems and shortcomings in the field of electricity are being developed by leading expert and Economist scientists in the field, conducting research based on the experience of foreign advanced countries. In particular, the cases of environmental and economic damage caused by environmental and climate changes in the production of electricity, uneven distribution of energy resources and fossil resources by countries of the world are scientifically studied by economists and express their opinion on their elimination.

The electric power grid is publicly operated in most countries of the world. Because the electricity sector is an extremely important sector in the functioning of the economic sectors and their economic development. To date, in developed countries, a healthy competitive environment has been formed in the field of electricity production and supply through regional electricity networks.

A sequence of implementation of the methodology for identifying existing problems in the management of the electrical energy network and assessing the management status of the industry has been developed (Figure 1).

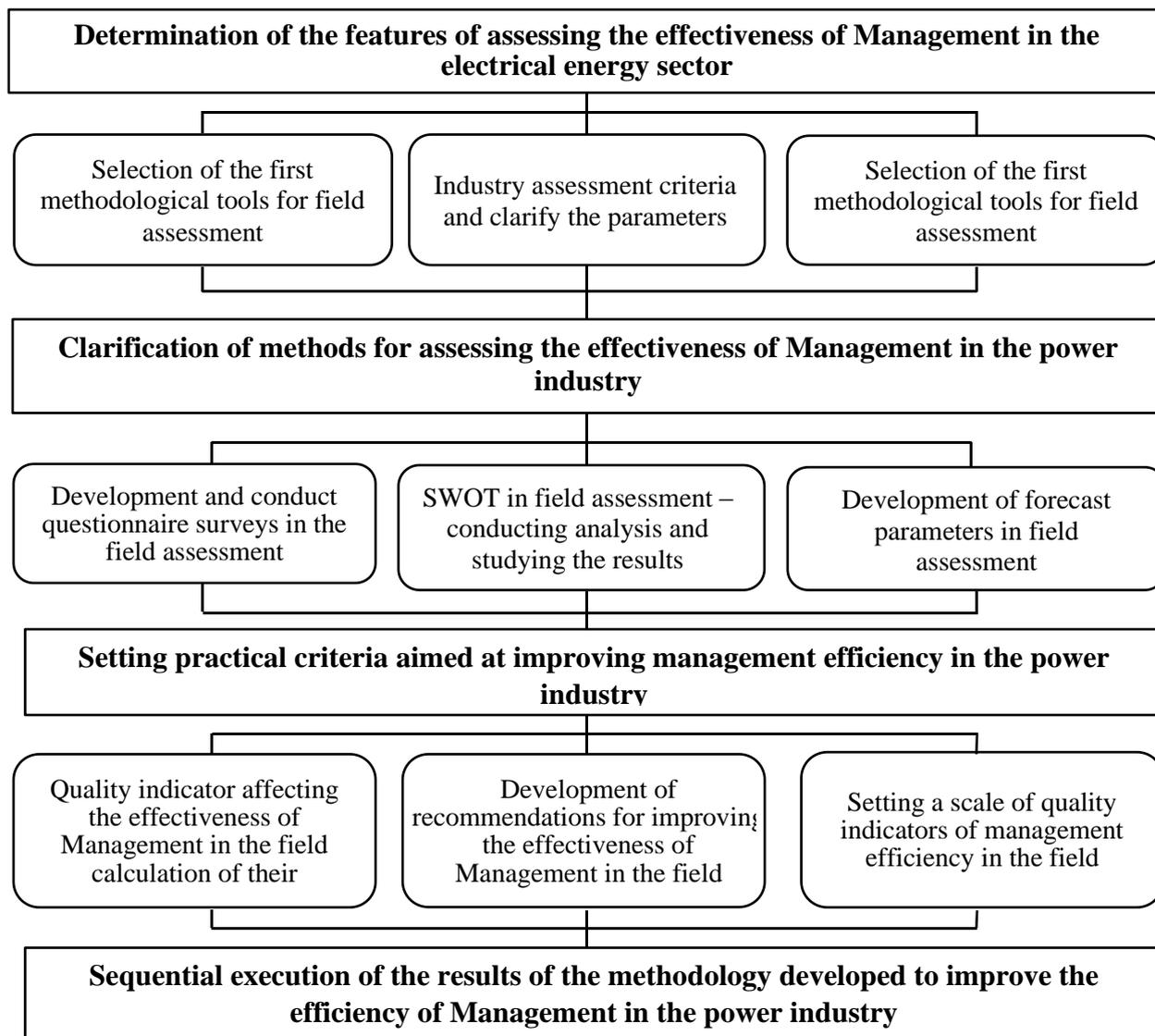


Figure 1. Sequence of implementation of Management Quality Assessment methodology in the field of electrical energy [15]

By developing a sequence of implementation of the management quality assessment methodology in the field of electrical energy, existing problems in the field are identified and ways to eliminate them are indicated.

As existing problems in the electric power sector of our country today, the following should be cited: the production of electricity, transmission through main lines and delivery through territorial power networks is the main sector of the economy; the insufficient scientific justification of theoretical knowledge in the control, regulation and management of enterprises and organizations engaged in the production of electricity, transmission through main lines; the presence of natural monopolistic States in the field of electricity (production of electricity, transmission through main lines and delivery through territorial networks); the absence of a competitive environment in the field; personnel operating in the field of electricity production, transmission through main lines and supply

through territorial power networks are mainly medium-educated personnel, and the lack of experience skills in them; the lack of modern technologies in the field of electricity production, transmission through main lines and supply through regional electricity networks; the fact that in the Real sector of the economy the electricity sector is above the swing.

We will focus on electricity generation indicators by country of the World (Table 1).

Table 1. Electricity generation by country of the world (TVT.clock)

№	Countries name	2000 year	2010 year	2015 year	2020 year	Difference from 2020 to 2000	The ratio of 2020 to 2000
Most electricity producing countries							
1	China	1,356	4,208	5,860	7,798	6,442	5,7 M
2	USA	4,053	4,378	4,317	4,262	0,209	105,1
3	India	0,562	0,975	1,358	1,557	0,995	2,8 M
4	Russia	0,878	1,038	1,068	1,096	0,218	124,8
5	Japan	1,068	1,171	1,059	1,011	-0,057	94,7
6	Canada	0,606	0,603	0,658	0,648	0,042	106,9
7	Brazil	0,349	0,516	0,582	0,614	0,265	175,9
8	Germany	0,577	0,633	0,648	0,572	-0,005	99,1
9	South Korea	0,290	0,500	0,553	0,571	0,281	196,9
10	France	0,540	0,569	0,580	0,533	-0,007	98,7
Countries with the lowest electricity generation							
1	Nigeria	0,015	0,026	0,032	0,040	0,025	2,7 M
2	New Zealand	0,039	0,045	0,044	0,044	0,005	112,8
3	Portugal	0,044	0,054	0,052	0,053	0,009	120,4
4	Romania	0,052	0,061	0,066	0,056	0,004	107,7
5	Uzbekistan	0,047	0,052	0,059	0,065	0,018	138,3
6	Kuwait	0,032	0,057	0,068	0,075	0,043	2,3 M
7	Colombia	0,043	0,061	0,079	0,076	0,033	176,7
8	Czech Republic	0,065	0,086	0,084	0,081	0,016	124,6
9	Chile	0,040	0,060	0,067	0,084	0,044	2,1 M
10	Algeria	0,028	0,048	0,052	0,088	0,06	3,1M

Note: 1 terawatt (TVT) = 1,000,000,000 kilowatts (kW)

Source: yearbook.enerdata.ru/world-electricity-production-statistics.html developed by the author based on his data.

Table 1 lists the electricity generation indicators of the countries of the world for the period 2000-2020. Among the top electricity generating countries, China produced 1,356 TVTs of electricity in 2000, up from 5.7 times to 6,442 TVTs by 2020. As of 2000, India is generating 2.8 times as much electricity as 2020. The US – increased by 5.1 percent, Russia – increased by 24.8 percent, Japan – decreased by 5.3 percent, Canada – increased by 6.9 percent, Brazil – increased by 75.9 percent, Germany – decreased by 0.9 percent, South Korea – increased by 96.9 percent, France-decreased by 1.3 percent. Looking at the least electricity-producing countries, compared to 2010, by 2020, Nigeria had an increase of 2.7 times, New Zealand had an increase of 12.8%, Portugal had an increase of 20.4%, Romania had an increase of 7.7%, Uzbekistan had an increase of 38.3%, Kuwait had an increase of 2.3%, Colombia had an increase of 76.7%, Czech Republic had an increase of 24.6%,

Chile had an increase of 2.1%, Algeria had an increase of 3.1%. From this it can be concluded that the greater the potential for electricity generation, the closer their economy has grown.

In terms of power generation potential and installed capacity within the Central Asian states, The Republic of Kazakhstan is the first, while the Republic of Uzbekistan is the second. In the Republic of Kazakhstan on the organization of the Electricity Market on the territory of Central Asia, the possibility may be unilaterally high, that is, the high potential for electricity generation. But in this regard, the possibilities of the Republic of Uzbekistan are considered wider. The energy resource potential of the Central Asian states is shown in Table 2

Table 2. Energy resource potential of Central Asian countries

Countries / Year		Coal* mlrd.t.	Oil* mln.t.	Gas* mlrd.M ³	Uranus** thousand. T.	Hydro*** mlrd. kW.s/y	QTEM * * * * billion kWh.s/y
Kazakhstan	2000	34,1	2760	1841	601	27	66
	2020	34,1	2760	1841	601	27	66
Kyrgyzstan	2000	1,34	11,5	6,54	-	52	-
	2020	1,27	1,2	6,2	-	99	-
Tajikistan	2000	0,67	5,4	9,2	-	317	18,4
	2020	1,0	10	10	-	317	18,4
Turkmenistan	2000	-	75	2860	-	2	-
	2020	-	75	2860	-	2	-
Uzbekistan	2000	2	350	2000	83,7	15	-
	2020	2	350	2000	83,7	15	-
Central Asia	2000	38,11	3261,9	6716,7	684,7	413	84,4
	2020	38,37	3205,2	6716,2	684,7	460	84,4

Note:* approved renewable reserves volume for coal, oil and natural gas given; * * uranium reserves proven by production costs up to 30 doll/kg evaluated by the World Energy Council (Jek); * * * hydropotential – cost-effective. Uzbekistan-technical hydropotential; * * * * QTEM - renewable energy sources.

Source:<https://onlinelibrary.wiley.com/doi/full/10.1002/pa.2427#:~:text=Central%20Asian%20countries%20are%20rich,use%20of%20regional%20energy%20resource> developed by the author based on his data.

If we analyze the data presented in Table 2, then the most coal reserves are in Kazakhstan - 34.1 billion. the tonnage is. The most oil reserves are also in Kazakhstan -2760 million. tons, in second place Uzbekistan-350 million. the tonnage is. Turkmenistan - 2860 billion in the first place in the gas reserve. M3, in second place Uzbekistan-2000 billion. M3, Kazakhstan in third place-1841 billion. M3. In terms of uranium reserves, Kazakhstan in the first place - 601 thousand tons, in the second - Uzbekistan-83.7 thousand tons, the rest of the republics do not have uranium reserves. The Republic of Tajikistan on electricity from water, i.e. on hydroelectric power plants - 317 crore. while kWh is in the first place with electricity production, the Kyrgyz Republic in 2020-99 billion. kW. the clock is in second place with electricity generation. In terms of renewable energy sources, in the first place - in the Republic of Kazakhstan-66 billion annually. kW. the clock produces electricity. In second place - in the Republic of Tajikistan-18.4 billion. kW. the clock produces electricity.

The dynamics of electricity generation in the countries of Central Asia, by percentage, is shown in Figure 2.

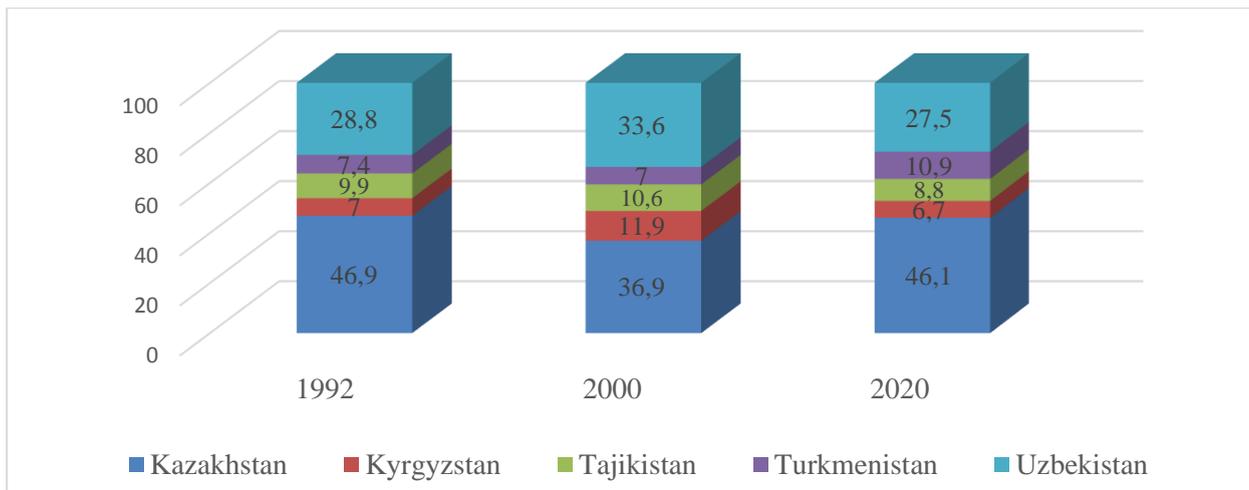


Figure 2. The state of electricity production in the countries of Central Asia, in percentage [16]

Focusing on the data presented in Figure 3.2, according to the countries of Central Asia in 1992, 2000 and 2020, the advantage in electricity generation falls on the Republic of Kazakhstan. According to the states of Central Asia, in 2020, 46.1% of the total produced electricity was produced in the Republic of Kazakhstan, in the Republic of Uzbekistan - 27.5%, in the Republic of Turkmenistan - 10.9%, in the Republic of Tajikistan - 8.8% and in the Republic of Kyrgyzstan - 6.7%.

Existing problems in the energy sector can accumulate, questioning the development of the industry and sectors and their financial situation. To prevent this, it will be necessary to focus on the development of the electricity sector in a decent way (expanding the use of renewable sources, effective use of low-cost technologies, prepayment of fees for used electricity, the formation of a competitive environment by increasing the involvement of foreign capital amounts in the industry).

Conclusion

Since the electricity sector of our country is now transformed into three independent organizations, management costs have increased somewhat. At the same time, there were inconveniences in some issues, including an unfavorable situation in the circulation of cash receipts through calculations from the fees for electricity used in the industry. Societies that have become independent organizations are required to carry out the following activities through the use of modern management techniques:

- improving private partnership relations in the field of electricity generation, attracting foreign investors to the industry on conditions that have protected the interests of domestic producers;
- improvement of beneficial management relations and application of modern innovation methods in their management, which coordinate the interaction between power generation, transmission and supply enterprises;
- determination of electricity prices (tariffs) based on differentiated and preferential discounts on the population for sectors of the economy;

- introduction of incentive mechanisms for the implementation of payment for electricity in our country (on the basis of hashbek);
- setting a separate price (tariff) for the insolvent layer of the population for the use of electricity in our republic;
- establishing the use of experience of advanced foreign countries in the management of thermal power plants and centers;
- formation of a purely competitive environment in the field of electricity production and supply through regional electricity networks;
- to create the possibility of direct electricity transmission to large industrial enterprises in an independent way by thermal power plants and centers that generate electricity.

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