

THE SCIENTIFIC AND THEORETICAL PROBLEMS OF TRANSITION TO A COMPETITIVE ELECTRICITY MARKET

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ABSTRACT

The article analyzes the application of competitive mechanisms in the electricity markets. The substantiation of the possibility of competition in the electric power industry and the further development of this concept in practice can be considered particularly significant results of these studies. The article lists and describes the stages of the formation of the electricity market. The transformation processes that have passed and are currently taking place in the electricity sector are described. The difficulties encountered in the legal regulation of the electric power industry are analyzed.

KEYWORDS:- Monopoly, Competition, Regulator, Electricity Market, Electricity Reform, Wholesale And Retail Electricity Markets, Price Of Electricity.

INTRODUCTION

It is known that the republic of Uzbekistan is carrying out systemic reforms to create a favorable investment climate, protect the rights and legitimate interests of private property owners. The purpose of these reforms is to accelerate the introduction of modern management methods, openness, transparency and market principles in state-owned enterprises, increase revenues through cost reduction, create more opportunities for

private capital participation, reduce state participation in the economy and improve the competitive environment [4]. In particular, the transformation of enterprises in the electricity sector, the introduction and effective development of effective management systems in them is a very important issue today.

Creating favorable conditions for the development of a healthy competitive environment in this sector of the economy on

the basis of universally recognized international standards and foreign experience of developed countries, as well as the creation of a competitive electricity and gas market with equal participation of all participants; and plays an important role in improving the well-being of the population. Free movement of monopolies in the market is not a positive situation [7]. This is because it is now clear that “more than one business entity is not economically viable [10]. Because, in a monopoly one seller produces the products for an entire market or industry. If the following three factors are present, monopoly pricing and output are likely to occur:

- The entire market is occupied by one seller.
- The product on sale is unique, there is no sufficiently close substitute consumers would turn to in the market.
- Substantial barriers to entry and exit exist [9].

In general, the liberalization of the energy sector means that the electricity and gas markets will be open to free competition. The liberalization of the energy sector is based,

firstly, on the one hand, the separation of regulated network activities, on the other hand, the opening of energy production and energy supply markets.

Legislation should ensure the emergence of a civilized energy market and a transparent, non-discriminatory and competitive energy market in order to ensure non-discrimination in the mutual and economic relations of its subjects with the state in the implementation of state energy policy.

It is also important to ensure real and effective competition in the energy market, to perfectly regulate this process in order to avoid the problematic situations observed in the experience of some foreign countries. As you know, as a logical continuation of the ongoing reforms, the portal for the discussion of draft regulations contains a number of draft laws and regulations on the reform of the electricity sector. The provisions of these draft laws are defined in terms of a gradual transition to the energy market, which will be updated from time to time and constantly improved.

However, in our view, the first steps in creating

a competitive energy market are:

- Establishment of a wholesale energy market

In almost all countries, energy production was initially in the hands of a state-owned monopoly. Therefore, the first step in shaping a competitive energy market is to ensure the freedom to build and operate competitive production facilities. Naturally, initially, the former monopoly organization will have a very high market share inherited from its history, which may not be enough to create a competitive energy market. Therefore, additional measures may be required to limit or reduce the market share of the former monopoly. Until a liquid market with enough competitors is formed, a number of problems may arise due to the lack of a reliable price index for electricity and gas, which represents the real basis of supply and demand. These circumstances may hamper the ability to attract investment in new production capacity infrastructure. Especially at a time when prices are rising, it is likely to undermine consumer confidence in the market. Such situations put

pressure on the market for government intervention through actions such as price controls, which could further damage investment incentives and result in the re-establishment of full government control over the sector in question. can cause the desired cycle.

From 2023, all electricity producers in Uzbekistan are expected to become participants in the wholesale market. To this end, significant work is being done to develop thermal energy, hydropower, renewable energy and nuclear energy.

Uzbekistan is one of the countries that fully meets its needs at the expense of its energy resources. A significant share of electricity generation capacity in the Central Asian Unified Energy System belongs to our republic. Currently, available generating capacity totals at 12.9GW, including: TPP - 11 thousand MW, or 84.8 per cent; HPP - 1.85 thousand MW, or 14.3 per cent; consumers' generators and isolated plants' capacity is over 133MW, or 1 per cent. 11 TPPs, including 3 CHPPs, are the main source of power generation. The capacity

of modern energy efficient generating units is 2825 MW, or 25.6 per cent of aggregate TPP capacity. 89.6 per cent of total power generated in the country 2019 was generated by TPPs. Meanwhile, the aggregate generating capacity of power units operating in the integrated power system during the peak load hours totals 8.6 thousand MW. The hydropower sector features 42 HPPs including 12 large HPPs with aggregate capacity of 1.68GW (90.8 per cent of overall HPP capacity), 28 SHPPs with aggregate capacity of 0.25GW (13.5 per cent), and 2 micro-HPPs, with aggregate capacity of 0.5MW. 30 HPPs with aggregate capacity of 532MW are run of the river plants (4 large plants - 317MW, and 26 SHPPs - 215 MW). There are 10 HPPs with reservoirs, with aggregate capacity of 1.4 GW. The efficiency of hydropower utilization in the country is at 27 percent [11]. It is obvious that the main source of electricity generation is thermal energy, the development of which using energy-saving technologies will serve to ensure the stability of the energy system of the whole country. In accordance with the Resolution of the President of the Republic of

Uzbekistan "On the Strategy for further development and reform of electricity in the Republic of Uzbekistan", the Ministry will implement measures in the field of thermal energy until 2030. The efficiency of power units is 60% ensures the introduction of modern energy generation technologies based on high-efficiency steam-gas turbine stations. Special attention is also paid to the construction of the first nuclear power plant with a capacity of 2.4 GW. In the process of transition to a "green" economy, the creation of modern solar and wind power plants with a total capacity of 6.7 GW is also a priority in the development of production in the energy sector. In particular, it is planned to increase the total capacity of solar and wind power plants to 8,000 MW by 2026 [6]. In the transition to a competitive energy market, all power plants, whether connected or not, can be state-owned or privately-owned. In addition, power plants owned by the Republic of Uzbekistan will be able to privatize existing power plants by selling them to a private investor for partial or full ownership or operation.

As a general rule, the electricity market includes wholesale and retail electricity markets. Processes in the electricity market are carried out on a contractual basis. This means that power generating companies operate mainly as wholesale energy market entities and generate electricity on a licensed basis. The law may stipulate that this activity is not licensed when the electricity required for its own consumption is extracted.

- Unbundling

It is known that companies, which are considered natural monopolies, are responsible for the production, supply and distribution of energy. Due to the lack of competition, these companies can set their own energy prices. Because these companies own the network infrastructure, new entrants to the energy market will not be able to enter. Electricity and gas companies, which are natural monopolies, are usually grouped vertically, with an internal interest in maintaining their customers, their share of the energy market, and thus profitability. When competition is introduced, it is natural that the

monopoly first tries not to lose 100% of the market share. For example, if a monopoly owns an electricity grid, it will have a dominant position to make it as difficult as possible for third parties to access the grid. If it manages to do so, it will be able to virtually set discriminatory tariffs and other entry conditions designed to support its trading efforts, which will prevent it from losing market share. The only solution to this problem is to organize the efficient separation of the transmission and distribution part of the energy network business from energy production and supply activities. This is because it is usually not economically or legally feasible to build a parallel gas or electricity transmission and distribution network by a new market participant with the same geographical and quality coverage as a traditional operator network. With this in mind, in order to develop competition, it is necessary to ensure that third parties have unrestricted access to the existing network.

Unbundling is the separation of assets, production lines, divisions or subsidiaries in order to create a more efficient structure while

maintaining the core business of a company with different business lines process.

As a result of the unbundling process, vertically integrated companies will no longer be able to manage their networks in the process of generating, supplying / distributing electricity. The functions of energy production, supply / transmission, distribution in the process of energy supply will be performed by several separate enterprises, independent of each other.

Thus, as a result of recent reforms in the electricity sector, the vertically consolidated Uzbekenergo JSC has been divided into enterprises directly engaged in the following types of activities in accordance with the functional principles of the state company:

- a) Electricity generation - JSC "Thermal Power Stations", JSC "Uzbekhydroenergo";
- b) Electricity transmission and maintenance of main electric networks, power system dispatching, centralized electricity trade and export and import operations on the basis of state-regulated tariffs - National Electric Networks of Uzbekistan JSC;

- c) Distribution and maintenance of electricity networks, technological connection of consumer energy devices and sale of electricity to consumers of the republic - JSC "Regional Electric Networks".

In the next stage of the reforms, it is planned to separate the function of the central buyer of electricity from the National Electric Networks of Uzbekistan from the operation of the main power grid, and to establish a new enterprise - Uzpowertrade.

The central buyer buys electricity from power plants operating in the territory of the Republic of Uzbekistan as a buyer and for this purpose concludes contracts with power plants for the purchase of electricity. The central buyer carries out only central procurement activities and cannot carry out production, transmission, distribution and delivery of electricity in the course of its activity. In terms of its legal form, organization and decision-making, the central buyer is independent of any other power company.

Electricity companies are not allowed to participate directly or indirectly in the charter

capital of the central buyer. In turn, the central buyer is not allowed to participate directly or indirectly in the charter capital of power companies, as well as to receive dividends or other financial benefits. The form of a legal entity acting as a central buyer is limited to a joint-stock company. The charter capital of a legal entity acting as a central buyer is directly or indirectly owned by the Republic of Uzbekistan.

Transmission and distribution of electricity through power grids is carried out by system operators. System operators connect network users to their power grids. Applicants wishing to connect to the system will be provided with information on the economic and technical conditions, procedures and fees associated with connecting to the system in a transparent manner. The system operator works closely with the applicant who wishes to connect to the system to determine the most optimal connection conditions. The connection to the power grid is based on a network connection agreement between the system operators and the applicants wishing to connect to the system.

System operators prepare and adopt standard contracts for connection to electrical systems and general conditions governing their structure, approved by the Energy Market Regulator. Standard contracts and general terms should be available on the system operators' websites.

Execution of power supply contracts will be gradually transferred to a convenient, simplified and secure electronic format. The system operator will be able to reject the application of the user who wants to connect to the electrical system only on the basis of the technical characteristics of the electrical system.

It is also planned to separate the activities of the operator of the transmission system and the operator of the distribution system in the form of a state company on the basis of JSC "Uzbekistan MET". The transmission system operator provides services for the transmission of electricity through transmission lines. In addition, it performs the functions of power transmission network management, reconstruction and

modernization of power transmission lines, operational dispatch management of the power system.

Transmission is an activity in the public interest that involves the transmission of electricity to consumers or distribution system operators through an interconnected transmission system, the operation, maintenance and development of the transmission system on economically viable terms, and the safe, reliable operation of the Unified Power System of the Republic of Uzbekistan. and the types of activities required to operate effectively.

In the Republic of Uzbekistan, the functions of the transmission system operator can be performed by only one entity at a time. The form of the legal entity acting as the operator of the transmission system is limited to the joint-stock company. The charter capital of a legal entity acting as a transmission system operator shall directly or indirectly belong only to the Republic of Uzbekistan. The transmission system and all its related facilities belong directly or indirectly to the

transmission system operator.

Distribution of electricity is a type of activity in the public interest, which involves the transportation of electricity through the distribution system, ensuring a safe and reliable supply of electricity for final consumption, operation, maintenance and development of the distribution system on economic terms. and other relevant activities required to ensure the efficient operation of energy distribution systems.

The functions of the distribution system operator are performed by legal entities licensed by the energy market regulator for distribution activities. The energy market regulator defines the geographical area in which each license issued for distribution activities entitles the licensee to perform the functions of the distribution system operator.

The legal entity acting as the operator of the distribution system is established in the form of a joint stock company. The charter capital of legal entities acting as the operator of the distribution system belongs directly or indirectly to the Republic of Uzbekistan. Any

distribution system and any objects related to it belong directly or indirectly to the Republic of Uzbekistan.

With the consent of the Energy Market Regulator, distribution system operators may sell and purchase electricity in order to cover losses in the distribution system, subject to the rules of the electricity market. Legal entities acting as distribution system operators may also act as suppliers at the same time.

Distribution services are provided to individual users of the system on the basis of service agreements with the operator of the respective distribution system. Each distribution system operator prepares and adopts its own services approved by the Energy Market Regulator, in particular, standard contracts for the provision of distribution services and distribution services, as well as general terms governing these contracts. Accepted standard contracts and general terms governing them are published on the website of the distribution system operator. Thus, on the basis of JSC "Regional Electric Networks" in the form of a state

company will be organized the activity of the operator of the electricity distribution system, and its main tasks are:

- a) Management of distribution electric networks, including reconstruction and modernization of distribution electric networks;
- b) Provision of electricity distribution services through distribution networks at the tariffs set by the Regulator;
- c) Preparation and adoption of general terms governing standard contracts for connection to the distribution system and distribution services.

A market operator with a developed online trading platform will be established as a state-owned organization, and all electricity trading operations will be carried out through an online trading platform in accordance with the tariffs and rules set by the Regulator.

The main functions of the online trading platform:

- Organization of wholesale electricity market and registration of market participants;

- Registration of contracts concluded between the participants of the wholesale electricity market, as well as contracts of export and import of electricity in accordance with the rules of the wholesale electricity market;
- Preparation of daily schedules of purchase and sale of electricity in the territory of the republic and abroad in accordance with the contractual obligations, as well as their timely submission to the operator of the distribution system;
- Organization of electricity trade and provision of settlement and clearing operations between wholesale electricity market participants in accordance with the terms of the offer;

A Balancing Market will be created to balance real-time electricity generation and consumption. Interactions between entities in the balancing market are carried out on the basis of agreements concluded in the form approved by the Regulator.

Electricity trading under the control of the market operator is carried out on the online

trading platform on the terms of the model "Trading for the next day" and the model "Intraday (hourly) trading" [5].

The classic hierarchical model of public administration in the delivery of electricity services based on state control will be replaced by a new model of management - the regulatory state. In fact, in perfectly competitive markets, regulatory efforts require less. However, in the absence of such ideal markets, regulation aims to control the behavior of market participants and control market failures through the use of coercive force by the government or its agencies [3]. Creating a competitive electricity market requires effective regulation of energy transmission and distribution networks in order to prevent discrimination, conflicts between market participants, and excessive price increases. Basically, there are three types of oversight bodies - independent ministry offices, independent regulatory commissions, and independent advisory agencies. In the energy sector, there is usually such an authority - an independent energy regulator.

The terms regulators or regulators are the product of the emergence of a regulatory state model. Regulators are specific bodies whose main functions are to "control the power and influence of market participants, ensure fair competition, protect consumers and citizens, manage and implement regulatory policies" [1].

Independent regulatory commissions are state bodies tasked with regulating specific aspects of the sector, which differ from ordinary advisory bodies in their scope of authority. Oversight commissions share regulatory powers with other government institutions, particularly the ministry concerned, and are far from short-term political influence. Their responsibilities often include regulating network access and determining network and end-user tariffs. Regulatory commissions may have judicial or semi-judicial powers, such as imposing fines and penalties for non-compliance, or arbitrating disputes between industry participants.

Therefore, the regulation, licensing, monitoring and control of activities in the

energy sector is carried out by the regulator of the energy market. Typically, an energy market regulator is established as a body with the status of a legal entity. The energy market regulator should be independent of any public body or private organization in the exercise of its regulatory functions.

The following are the main functions of the regulator:

- Prevention of unjustified increase in prices for electricity supply to consumers;
- Develop and approve market rules that ensure equal rights and transparency for market participants;
- Control over compliance with the rules by market participants;
- Introduction of norms on social protection of vulnerable groups of the population in the formation of electricity tariffs;

Decisions made by the regulator within its competence shall be binding on the state and economic administration bodies, local state authorities, business entities and citizens.

Summarizing the world experience in

electricity reform, the following main models of the electricity market can be identified:

- 1) Vertically integrated model - the process from generation to sale of electricity is carried out within an integrated company, the prices are regulated by tariffs (France);
- 2) Single Buyer Model - as a system operator, the Single Buyer buys electricity from independent energy producers on a long-term contract at regulated prices (Austria); This model is a transition from the vertically integrated model to the Retail Market model.
- 3) Wholesale market or independent producer model - a vertically integrated model based on a natural monopoly in the field of energy transmission and distribution, with competition between producers (Australia, UK, Spain);
- 4) Competitive market model - the most liberal model, in which energy pricing is carried out on a competitive basis in the wholesale and retail markets of electricity (Germany, Japan, Finland) [8].

It should be noted that the experience of

foreign countries has shown that without a real liberalized market for energy services, the country's energy supply will be disrupted and serious problems will arise. For example, energy crises related to lack of capacity, sharp increases in spot prices, and consumer restrictions have occurred in Brazil and Argentina, Victoria and South Australia, Chile, and other countries, resulting in a return to state regulation of the energy sector. After the transition to a competitive market in Western Europe, particularly the UK, its shortcomings began to emerge, despite favorable "initial" conditions; In Norway, Sweden, Germany and other countries, there has been an increase in electricity prices (exceeding the total consumer price index) due to insufficient investment in new power plants and power grids [2]. Why is it so difficult to turn a regulated monopoly power industry into a competitive industry for energy supply at the wholesale and retail levels? First, it has unusual physical and economic attributes that significantly complicate the task of replacing power hierarchies (vertical integration and multilateral agreements) with decentralized

market mechanisms. That is, the demand for electricity varies widely from season to season, day and night, extreme temperatures and weekdays and weekends (and holidays). The difference between the highest demand and the lowest demand in a year is about three factors. Because electricity cannot be stored economically, and electricity consumption and production take place at the same time [12].

The conclusion is that, first of all, the problem of integrating energy legislation into a unified system in the reform process is urgent. There is a need to develop and adopt a new conceptual legislation that combines the basic rules and principles of legal regulation of market relations in the energy sector.

In addition to state regulation of the energy sector, in a market economy, contractual regulation, along with legal regulation, plays an important role as an independent legal method of organizing the specific individual relationships of existing business entities. Clearly, contractual regulation is broader than legislation in its impact on market relations. Through the regulation of legislation, a

mechanism of self-regulation is created, the legal framework of business activities, standard models are defined, according to which the entities formulate taking into account the specific circumstances, contractual obligations that meet their interests. As a result, conditions will be created for businesses to realize their potential for self-organization and self-regulation of property relations.

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