

MANAGEMENT SYSTEM OF ELECTRIC POWER INDUSTRY IN UZBEKISTAN

Khakimova Shoiria

Phd Researcher, National University Of Uzbekistan

ABSTRACT: This article discusses Management system of electric power industry in Uzbekistan.

KEYWORDS: Electric power industry, Uzbekistan, Central Asia

INTRODUCTION

Uzbekistan has become the largest country in Central Asia. Electricity of Uzbekistan is a key sector of the economy, has significant production and scientific and technical potential and has a significant impact on its development. Electricity ensures the development of industry, transport, manufacturing and social infrastructure.

As early as the 1990s, Uzbekistan had a power system capable of fully meeting its domestic demand for electricity. From 1990 to 2000, electricity production and consumption in Uzbekistan declined slightly until 1995, and today it is close to 1990 levels.

The slight decline in electricity generation during the years of independence was mainly due to the obsolescence of electrical equipment installed at existing power plants, some of which were stopped for repairs.

THE MAIN RESULT AND FINDINGS

The decline in electricity generation between 1990 and 2000 coincided with a decline in consumer demand for electricity during this period, which did not lead to a general power shortage in the power system.

Over the past 30 years, electricity generation in the country has more than tripled, with a capacity of 55-60 billion kWh. kWh. Today, the share of the population in the total use of electricity in the country has reached 26.5%. In 1990, the figure was 13.9%. In 2005-2011, the growth of electricity consumption was 10.9%.

The main directions of state policy in the field of electricity are:

- Ensuring electricity security of the Republic of Uzbekistan;

- Ensuring safe and reliable operation of the Unified Power System, meeting the needs of consumers in electricity;
- Ensuring equal access of consumers to regional electricity networks;
- Introduction of market principles and mechanisms in the system of management and economic relations for the generation, transmission and sale of electricity;
- Ensuring the balanced development of electricity;
- Rational use of electricity and fuel and energy resources.

In order to effectively organize the production, transmission and consumption of electricity and heat, the country has a single power system, which includes all power plants, substations and power transmission lines.

Power plants in all regions of Uzbekistan are interconnected to form a single energy system. The electricity system of Uzbekistan is conditionally divided into 5 regional energy hubs:

- North-West - the Republic of Karakalpakstan and Khorezm region;
- south-west - Kashkadarya, Samarkand, Bukhara and Navoi regions;
- southern - Surkhandarya region;
- eastern - Andijan, Namangan and Fergana regions;
- Central - Jizzakh, Syrdarya, Tashkent region and the city of Tashkent.

The central part of the energy system of Uzbekistan includes the Syrdarya TPP, Yangi-Angren TPP, Tashkent TPP, Charvak HPP, Khojикent HPP and other major thermal and hydroelectric power stations. The power grids in the central part of the power system also supply electricity to Tashkent, Jizzakh, Syrdarya regions and the city of Tashkent.

The Samarkand-Bukhara power hub of the Uzbek energy system provides centralized electricity to consumers in Samarkand, Bukhara, Navoi and Kashkadarya regions of Uzbekistan. The Samarkand-Bukhara power junction includes Navoi TPP, Mubarek TPP, Talimarjan TPP and a number of HPPs with a total capacity of 40.1 MW.

Consumers of the Republic of Karakalpakstan and Khorezm region, located in the north-western power system, are fully supplied with electricity by Takhiatash TPP and Tuyamoyin HPP.

The Fergana Energy Center includes Fergana, Andijan and Namangan regions. The center is connected to the central part of the power system through the 500 kW Syrdarya TPP - Lochin substation and Yangi-Angren TPP - Uzbekistan substation, as well as Angren TPP - Obi Hayot substation.

The Fergana Energy Center provides consumers with 1,600 MW of electricity from the Fergana TPP, Andijan HPP, Shahrikhan HPP cascade. In order to provide the Fergana energy center with reliable electricity, in 2009 the 500 kW substation "Yangi-Angren TPP" - "Uzbekistan-500" was commissioned.

Prior to the commissioning of the 500 kW overhead line from the Guzar substation to the Surkhan substation in 2009, the Surkhandarya power plant was supplied with electricity from the Tajik power system through 500 kW and two 200 kW overhead lines. Since 2009, electricity supply to Surkhandarya region has been provided through the energy system of Uzbekistan.

Decree of the President of the Uzbek SSR No. PF-57 of 28.09.1990 "On the establishment of the Ministry of Energy and Electrification of the Uzbek SSR". In accordance with this decree, Uzbekenergo Production Association and Uzbekhydroenergostroy State Construction and Installation Association are working to establish an effective method of managing enterprises and organizations of the energy and electrification networks in the country, to improve their structure, to meet the needs of the economy in electricity and heat in the transition to market relations. The Ministry of Energy and Electrification of the Uzbek SSR was established on the basis of the trust and their existing structural subdivisions.

In accordance with the decision of the Cabinet of Ministers of the Republic of Uzbekistan, the Uzbekenergo State Production Association, established in 1997 within the Ministry of Energy and Electrification of Uzbekistan, was transformed into the Uzbekenergo State Joint Stock Company (SAC) in 2001.

Resolution of the President of the Republic of Uzbekistan dated February 22, 2001 "On deepening economic reforms in the energy sector of the Republic of Uzbekistan", PC No. 2812 and the Cabinet of Ministers of the Republic of Uzbekistan No. 93 dated February 24, 2001 The Ministry of Energy and Electrification of the Republic of Uzbekistan was abolished by the decision of the Ministry of Energy and Electrification of the Republic of Uzbekistan and the state joint-stock company Uzbekenergo was established on the basis of its structural subdivisions.

There are 53 enterprises and organizations in the system of Uzbekenergo, including 39 open joint-stock companies, 11 unitary enterprises and 2 limited liability companies and the company's Energosotish branch. There were also 10 thermal power plants, 6 hydroelectric power stations, and 5 main power lines.

The main tasks of Uzbekenergo SJSC:

- ensures safe and reliable operation of the unified electricity system and meeting the needs of consumers in electricity;
- develops programs for the development of electricity;
- Participates in the formation of the balance of electricity generation and consumption, and makes proposals on electricity tariffs;
- determines the mode of operation of the unified electric power system;
- manages the main electric networks;
- Carries out measures for the reconstruction, modernization and development of energy generating capacity and electricity networks;
- controls the activities of the system operator of the unified electric power system, the single buyer of electricity, the enterprise of the main electric networks;
- develops and approves normative documents in the field of electricity;
- Coordinates technical regulation, standardization, metrology and certification in the field of electricity;
- Coordinates scientific research, adjustment, repair and engineering design work at power facilities;
- development and implementation of measures for the rational use of electricity and fuel and energy resources, as well as the use of renewable energy sources.

Uzbekenergo is the only producer of electricity in the country, providing centralized electricity to the economy and the population, as well as thermal energy to industrial enterprises and consumers in some cities of the country. During the years of economic reforms, the enterprises of Uzbekenergo have invested 48 billion soums annually. kWh of electricity and 10 mln. More than Gcal. Of heat energy is produced. This fully meets the demand of the economy and the population for electricity.

The joint-stock company's more than 235,000 km of 0.4-500 kW power grids attract almost all consumers of the republic to the centralized power system. The installed capacity of the company's power plants is 12.0 mln. more than kW, including IES - 10.6 mln. kW, GES - 1.4 mln. kW. The share of power plants in the power generation system is 3%.

Uzbekenergo has identified priority areas for energy development, which include:

- technical re-equipment, reconstruction and modernization of power plants aimed at maintaining the installed capacity of power plants, improving their technical and economic performance;

- introduction of modern high-efficiency technologies and devices that ensure the economy of fuel and energy resources and reduce the environmental impact of energy production.

Since 2000, the company has been working in these areas, and attracting foreign investment plays a major role in this.

One of the priorities in the process of reforming the electricity sector is to attract foreign investment. The government has allocated 37% of Uzbekenergo, 21% of the Development and Reconstruction Fund of Uzbekistan, 28% of foreign investments and about 3% of loans from local banks for the reconstruction and development of electricity.

Until 2005, there were 20 thermal power plants and 27 hydropower plants in Uzbekistan. Their total installed capacity is 11.5 million. kWh (with a capacity of 55 billion kWh of electricity per year), the total capacity of transformers is 44,850 MVA, the total length of power grids is 232 thousand km, including high-capacity (500 kW) 1660 km.

In 2014 alone, the volume of electricity generated by Uzbekenergo amounted to 55.4 billion kWh. kWh, of which 5.1 billion kWh through hydropower plants. kWh or 9% of the total capacity, and 49.3 billion kWh through thermal power plants. kWh or 89% of the total capacity and 2% of electricity was generated through the blocking of ministries and departments. Consumers of the republic received 43.2 billion soums kWh, including 10.2 billion to the population. kWh of electricity was supplied. The total number of consumers was 5.9 million.

In 2004-2017, Uzbekenergo JSC launched the following new production facilities:

- In 2004, 1 power unit of Talimarjan TPP with a capacity of 800 MW was commissioned;
- In 2013, a power unit with a capacity of 478 MW was commissioned at Navoi TPP;
- In 2014, a gas turbine with a capacity of 27.15 MW was launched at the Tashkent IEM;
- In 2016, two steam and gas units with a capacity of 450 MW at Talimarjan TPP and a power unit with a capacity of 150 MW at New Angren TPP were commissioned.

The unitary enterprise "Uzelektrosnab" carried out the supply of electricity from the power generating enterprises to the enterprises of the regional electric networks through the main electric networks with a total length of more than 8.8 thousand with a capacity of 220-500 kW. The company's 76 substations have a total capacity of 20 million. kVA transformers are installed.

Sales of electricity to consumers are carried out by 14 regional distribution and sales companies operating as joint-stock companies in each regional structure.

CONCLUSION

The balance of enterprises includes more than 226.2 thousand kilometers of power transmission lines and substations with a voltage of up to 110 kV.

From 1991 to 2018, the number of electricity consumers in Uzbekistan increased by 2,500,000, the consumption of electricity in the economy amounted to 5.7 billion kWh per year. Uzbekenergo's electricity generation capacity is 1.5 million kWh. kWh increased. Electricity generation amounted to 8.8 billion kWh increased. The total length of power lines has increased to 38,200 km.

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