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# RELATIONS OF UZBEKISTAN WITH NEIGHBORING REPUBLICS IN THE FIELD OF ELECTRIC POWER

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**A B S T R A C T**

This study provides a comprehensive analysis of the strategic partnership relations of the Republic of Uzbekistan with the countries of the Central Asian region in the electric power sector. The article scientifically substantiates issues regarding interstate agreements, mechanisms for mutual electricity exchange, and the efficient and rational use of regional water and energy resources. Furthermore, it highlights priority areas for ensuring energy stability within the context of regional integration.

**K E Y W O R D S**

Central Asia, electric power industry, unified energy system, investment projects, technological modernization, energy strategy, high-voltage networks.

## INTRODUCTION

On November 15, 1996, Tashkent hosted a prestigious conference organized by the Central Asian Coordination and Advisory Group in the field of energy and the special program of the European Commission [3]. At the seminar "Implementation and Implementation of the Energy Charter in Central Asia", experts emphasized the strategic role of the region in ensuring global energy security. The resolution adopted by the UN General Assembly in December 2008 can be cited as the international legal basis for regional cooperation. This document, initiated by Turkmenistan and supported by Uzbekistan, entitled "Reliable and Continuous Transit of Energy Resources and its Role in Sustainable Development", marked the beginning of a new stage of cooperation with the international community on energy transportation issues [2]. In particular, the involvement of UN mechanisms in ensuring the security of trans-regional gas projects passing through Afghanistan has become an important guarantee of the practical implementation of these projects [10].

## Main Part

The energy complex of Uzbekistan is the backbone of the Central Asian Unified Energy System (UES), operating in harmony with the unified system of the CIS countries [7]. According to the mechanism of regional energy exchange, the enormous hydropower potential of Tajikistan and Kyrgyzstan was effectively used in the summer period, while in the winter period, the energy balance was maintained due to the heat and coal resources of Uzbekistan, Kazakhstan, and Turkmenistan [4].

Such centralized control and mutual integration of electrical circuits served to significantly increase the overall efficiency of the system.

The issue of relations between the countries of Central Asia in the use of water and energy resources of the transboundary basin of the Syr Darya River has a long history. The need for a clear solution to this issue became apparent immediately after the collapse of the former Soviet Union in 1991. As a result, after gaining independence, the Central Asian states signed such agreements as the Almaty Agreement "On Cooperation in the Field of Management and Protection of Joint Use of Water Resources" (February 18, 1992), the "Kyzylorda Treaty" (March 26, 1993), and the "Nukus Declaration on the Development of the Aral Sea Basin" (September 20, 1995), which regulate the use of water resources in the region [9].

Also, the Republics of Kazakhstan, Kyrgyzstan, and Uzbekistan signed the "Agreement on the Use of Water and Energy Resources of the Syr Darya River Basin" on March 17, 1998, in Bishkek[8]. Although this agreement, to which Tajikistan became a member in 1999, was a model and was designed for a five-year period, it served as an impetus for balancing the water management and energy situation in Central Asia and served as the basis for the annual agreements on the joint and integrated use of the water and energy resources of the Naryn and Syrdarya reservoirs. [11].

This agreement stipulates that the electricity generated in the Naryn-Syrdarya HPP cascade is related to the regulation of water in the Takhtakul and Kayrakkum reservoirs, and in addition to the needs of the Kyrgyz Republic and the Republic of Tajikistan, it is equally transferred to the Republic of Kazakhstan and the Republic of Uzbekistan, and compensated to the Kyrgyz Republic and the Republic of Tajikistan in equal amounts through energy resources (coal, gas, fuel, electricity) or other products (works, services).

The volume of foreign electricity trade with neighboring countries in 2003-2017 remained unstable due to the withdrawal of Turkmenistan in 2003, Uzbekistan on October 17, 2009,[20] and Tajikistan in 2010 from the regional energy system (the energy ring of the former Asian republics of the USSR). As a result, the volume of electricity flows on the Uzbekistan-Turkmenistan and Uzbekistan-Tajikistan routes has sharply decreased.

Interstate power transmission lines, within the framework of the energy systems of the CIS countries, on the basis of intergovernmental agreements, constantly alternated electricity. They carried out transit deliveries of electricity to neighboring republics from their networks, mainly through 500 kW power transmission lines. L-501 Tashkent TPP-PS Chimkent, L-504 PS Lochin-PS Takhtakul HPP, L-507 PS Regar-PS Guzar, L-508 PS Regar-PS Surkhan, L-512 Mari HPP-PS Karakul are the main interstate power transmission lines with a capacity of 500 kW.

Uzbekistan annually made purchases from the energy systems of Tajikistan and Kyrgyzstan. However, this will not affect the quality or quantity of electricity in the country. The need for this necessitated, first of all, the rational use of water and energy resources in the Central Asian region and the full satisfaction of the country's agricultural water needs. At the same time, Uzbekistan exported electricity to the Republic of Tajikistan on the basis of an annually adopted intergovernmental agreement on cooperation in the field of rational use of water and energy resources in the region, as well as to Afghanistan on the basis of a direct agreement[15].

Until December 2009, Uzbekistan's energy system imported hydroelectric power from Kyrgyzstan and Tajikistan in the summer and exported excess electricity (on average 1 TWh) to Tajikistan in the winter.

At the end of 2009, the 500 kW "South-North" power transmission line, connecting the energy networks of the Sughd region and Central Tajikistan, bypassing the Republic of Uzbekistan, was put into operation in the Republic of Tajikistan. With the commissioning of this 386-kilometer power transmission line, the Republic of Tajikistan became the owner of its own unified energy system. Since December 2009, the operation of the Tajik energy system has been carried out in isolation from the countries of the Central Asian energy system.

The supply of electricity to remote areas of neighboring countries was carried out on the basis of agreements between the states. In particular, as a result of the suspension of electricity supplies from Uzbekistan, in February 2010, residents of the village of Zarnisor, Sogd District, Tajikistan, were disconnected from electricity for a certain period, and work at the Paypuloq and Oltin-topgan mines also stopped [18].

**Result and Discussion**

In 2017, a number of meetings and negotiations were held between Tajikistan and Uzbekistan on the issue of resuming parallel work. Tajikistan has now expressed its full readiness to connect from the 500 kW Regar substation to substations in Uzbekistan and to begin supplying electricity to Uzbekistan through these lines[19]. It should be borne in mind that since 2009, both in the energy system of Central Asia and in the energy system of Tajikistan, due to changes in the electrical communication scheme, there have been problems in restoring parallel operation according to the old scheme, which required the reconstruction of emergency automation.

At the beginning of 2018, an agreement was reached between the Ministry of Energy and Water Resources of the Republic of Tajikistan and JSC "Uzbekenergo" on the supply of up to 1.5 billion kWh of electricity from Tajikistan to Uzbekistan.

To regulate the frequency of the republic's electricity supply, the system consistently imported the highest amount of energy from Kyrgyzstan[12]. It was exported to the Kyrgyz Republic seasonally as partial compensation for the previously imported resource[6]. Since July 16, 2017, Kyrgyzstan has exported 1.2 billion kWh of electricity to Uzbekistan. The cost of 1 kWh of electricity is estimated at 2 cents.

Uzbekistan, as a close neighbor, has provided substantial assistance to Afghanistan. In particular, Uzbekistan is the main supplier of electricity to Afghanistan, which is produced on its territory and supplied from Tajikistan and other neighboring countries[13]. Since 2002, electricity has been supplied to Afghanistan in small volumes - 0.5-1.5 thousand MW of electricity per year, based on direct contracts signed annually, taking into account the needs of the Afghan side. In 2002, the supply volume was 62 million kWh. Due to the needs of the Afghan population, energy exports have grown to 200 million kWh annually.

On April 21, 2008, a meeting was held between the Chairman of the State Joint-Stock Company "Uzbekenergo" Batyr Teshabaev and the Minister of Energy and Water Resources of the Islamic Republic of Afghanistan Ismail Khan. At the meeting, issues of further development of cooperation between Uzbekistan and Afghanistan in the energy sector were discussed, and opportunities for the development and implementation of new joint projects were considered. A memorandum of understanding was signed on the construction of a 220 kV overhead line from the Surkhan substation in Uzbekistan to the Hairatan substation in Afghanistan. In October 2008, the construction of a 442 km 220 kW overhead line in Afghanistan was completed[18].

In 2009, the technical export capacity was expanded to 300 MW with the commissioning of the 197 km Guzar-Surkhan overhead line in the Afghan direction with a total cost of $128.4 million[17], the modernization of the Surkhan power substation, and the creation of power grids.

As a result of the commissioning of the 220 kW Surkhan-Naibad overhead lines in 2009, the volume of electricity supplies to Afghanistan exceeded 1 billion kWh per year[7]. Uzbekistan supplied electricity to Afghanistan's northeastern power grid through these overhead lines. By 2010, the volume of electricity supplied by Uzbekistan to this country increased 6 times compared to previous years[5]. Deputy Chairman of the State Joint-Stock Company "Uzbekenergo" R. Raimov, at a meeting of the faction of the Social Democratic Party of Uzbekistan "Adolat", reported that in the first three quarters of 2013, Uzbekistan supplied Afghanistan with electricity worth 53.14 million dollars.

Uzbekistan is the sole supplier of electricity to the major northern provinces of Afghanistan. Representatives of the Afghan side signed an agreement "Uzbekistan and Afghanistan on the Supply of Electricity in 2016" in 2016, aimed at increasing electricity supplies to Afghanistan by 10%.

Also, a number of problems arose in the regulation of new water relations between the countries of Central Asia. If at the beginning of the 2000s there were not many serious problems and tensions in water relations, then later disagreements arose regarding the construction and operation of large hydraulic structures on the Amu Darya and Syr Darya rivers. This can be seen in the construction of the Kambarata cascade of hydroelectric power plants and the Rogun hydroelectric power plant. Until 2016, issues related to the construction of large hydraulic structures not only hindered the development of water relations in the region, but also affected economic cooperation between the countries of Central Asia[1].

**Conclusion**

In conclusion, in order to develop the industry in the republic, it became a member of a number of prestigious international energy organizations. In order to deeply reform the energy sector of Uzbekistan, the experience of other countries was studied. Along with importing energy, the country has become an exporter.

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