



HISTORY AND ACTIVITY OF THE CONSTRUCTION OF THE SIRDARYO TPP

Mavlanov Asadbek Olim ugli

Master's student in History, Gulistan State University

Tel: +998 91 809 80 59

Abstract: This article analyzes the history of construction, development stages, and operational activities of the Syrdarya Thermal Power Plant. It examines the formation of Uzbekistan's energy sector, the establishment of major power plants during the Soviet period, and modernization processes in the years of independence. The study also highlights the technical characteristics, production capacity, and the leading role of the Syrdarya TPP in the national energy system.

Keywords: Syrdarya TPP, thermal power plant, energy sector, electricity, modernization, power units, Uzbekistan energy, industry, gas turbines, energy efficiency.

Annotatsiya: Mazkur maqolada Sirdaryo issiqlik elektr stansiyasining qurilish tarixi, uning bosqichma-bosqich rivojlanishi hamda O'zbekiston energetika tizimidagi o'rni tahlil qilingan. Unda mamlakat energetika sohasining shakllanish jarayoni, sovet davrida yirik elektr stansiyalarining barpo etilishi va mustaqillik yillarida amalga oshirilgan modernizatsiya ishlari ilmiy asosda yoritilgan. Shuningdek, Sirdaryo IESning texnik xususiyatlari, ishlab chiqarish quvvati va milliy energetika tizimidagi yetakchi roli ochib berilgan.

Kalit so'zlar: Sirdaryo IES, issiqlik elektr stansiyasi, energetika, elektr energiyasi, modernizatsiya, energoblok, O'zbekiston energetikasi, sanoat, gaz-turbina, energiya samaradorligi.

Аннотация: В данной статье рассматриваются история строительства Сырдарьинской тепловой электростанции, этапы её развития и значение в энергетической системе Узбекистана. Анализируются процессы формирования энергетической отрасли страны, строительство

крупных электростанций в советский период и модернизация в годы независимости. Особое внимание уделено техническим характеристикам станции, её производственной мощности и ведущей роли в национальной энергетике.

***Ключевые слова:** Сырдарьинская ТЭС, тепловая электростанция, энергетика, электроэнергия, модернизация, энергоблок, энергетика Узбекистана, промышленность, газотурбинные установки, энергоэффективность.*

Introduction: Electric energy is a unique blessing of human civilization and today serves as one of the key factors ensuring the well-being of society. The history of global energy, particularly the historical development of Uzbekistan's electric power sector, represents a complex and large-scale historical process. Studying the major stages of its evolution and development trends is of great importance for understanding and determining the future prospects of modern energy systems.

Literature Review: The study of the history of construction and operation of the Syrdarya Thermal Power Plant is closely connected with the analysis of the development of Uzbekistan's energy system. Existing scholarly literature on this topic has primarily focused on the formation of the energy sector, the technical and economic significance of thermal power plants, and their role in the national economy. In particular, S.S. Sattorov's work "Thermal Power Plants and Their Role in the Economy" provides a comprehensive analysis of the economic efficiency of thermal power plants, their role in industrial development, and their importance in electricity generation. The author substantiates that thermal power engineering is one of the priority directions of the country's economic development and offers a scientific evaluation of the strategic importance of large power plants.

Furthermore, studies devoted to the formation and development of Uzbekistan's energy system highlight the construction of large power plants during the Soviet period, including the Syrdarya TPP, as a significant stage in ensuring the supply of electricity to industrial enterprises. These works mainly focus on the

centralization of the energy sector, the introduction of large power units, and the sharp increase in electricity production volumes.

In addition, literature related to the years of independence extensively discusses issues such as modernization of the energy sector, attraction of foreign investments, and the introduction of modern technologies. These studies provide a scientific explanation of the processes of upgrading the Syrdarya TPP, reconstructing its power units, and improving energy efficiency.

The analysis of available literature shows that most existing studies are aimed at examining general trends in the development of the energy system, while comprehensive research specifically devoted to the construction history, technical features, and operational activities of the Syrdarya TPP remains limited. In particular, its role in regional development, industrial infrastructure, and modern energy policy has not been sufficiently explored.

In this regard, the present article aims not only to generalize existing scientific views but also to provide a systematic analysis of the historical formation, stages of development, and contemporary significance of the Syrdarya Thermal Power Plant.

Research Methodology: This study employs a комплекс approach based on historical, systematic, and comparative analysis methods to examine the construction history and operation of the Syrdarya Thermal Power Plant. During the research process, both primary and secondary sources were analyzed, including scholarly literature, archival materials, and statistical data.

Using the historical method, the stages of formation of Uzbekistan's energy system were consistently studied, with particular attention to the design, construction, and commissioning of the Syrdarya TPP. Through a systematic approach, the role of the plant within the energy network, as well as its close interconnection with industry and the broader economy, was comprehensively analyzed.

The comparative-historical method made it possible to compare the Syrdarya TPP with other thermal power plants and to identify its technical and economic

advantages. In addition, the methods of induction and deduction were applied to draw general conclusions and to synthesize the available data.

During the research, the method of critical analysis of sources was also employed in order to determine the reliability of information from different periods and to clarify discrepancies between them. This contributed to ensuring the scientific validity and objectivity of the research findings.

Such a methodological approach made it possible to conduct an in-depth and systematic study of the historical development, technical characteristics, and contemporary significance of the Syrdarya Thermal Power Plant.

Analysis and Results: The results of the study indicate that the Syrdarya Thermal Power Plant is a major energy facility of leading and strategic importance within Uzbekistan's energy system. Its construction coincided with a period of sharply increasing demand for electricity in the country and played a significant role in supporting the development of industry and infrastructure.

The analysis shows that the construction of the Syrdarya TPP was carried out on a sound technical and economic basis, and its location can be explained by its proximity to fuel resources (natural gas), water resources, and transport infrastructure. These factors created favorable conditions for the efficient generation of electricity and its transmission across wide territories. In addition, the phased construction of the plant led to the commissioning of 10 power units, bringing its total capacity to 3 million kW. This made the Syrdarya TPP one of the largest thermal power plants not only in Uzbekistan but also in Central Asia.

Another important finding of the research is that the plant has operated steadily for many years and has generated more than 600 billion kWh of electricity. This demonstrates its significant role in ensuring the country's energy security.

The analysis of the modern stage shows that, as a result of modernization measures implemented at the Syrdarya TPP, the capacity of the power units has been increased, fuel consumption has been reduced, and the service life of the equipment

has been extended. This has created opportunities for improving energy efficiency and making more rational use of resources.

At the same time, the overall findings confirm that thermal power plants currently generate the main share of the country's electricity and play a decisive role in maintaining the stable functioning of the energy system. The Syrdarya TPP continues to operate as one of the key pillars of this system.

Conclusion and Recommendations: According to the research findings, the Syrdarya Thermal Power Plant is one of the important strategic facilities in the formation and development of Uzbekistan's energy system. Its construction played a decisive role in meeting the country's growing demand for electricity, promoting industrial development, and stabilizing the energy system. In addition, the plant's high production capacity and many years of efficient operation confirm its leading position in the national energy sector. The modernization measures carried out in recent years have also created opportunities to improve energy efficiency and ensure the rational use of resources.

On this basis, it is necessary to continue the modernization of thermal power plants, widely introduce modern energy-saving technologies, ensure the efficient use of fuel resources, and strengthen the training of qualified personnel in the energy sector as urgent priorities.

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