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Article

Analysis of Electrical Engineering Industry Enterprises in Uzbekistan and Their Activities

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Abstract: The changes in electrical engineering industry enterprises in Uzbekistan a sector of strategic importance for industrial modernization and technological advancement as well as the economic performance of this enterprises have been analyzed in this study. Although the rapid growth stimulated by state support and investment inflows, the literature has provided limited comprehensive assessments of enterprise-level efficiency and structural industry challenges. This Study fills this gap by Assessing production dynamics, country export performance, investment activity & financial indicators.

It uses statistical, comparative and time series analysis of secondary data compiled from national statistical agencies, government reports and industry sources. It evaluates quantitative indicators, such as production volume, an emergency in export and investment, and qualitative — structure of enterprises and diversification of manufacture.

The results show that the category has been booming, with production rising seven-fold and exports increasing significantly from 2017 to 2023. High competitiveness and export potential of the industry is being ensured by technological modernization and capital investments. Results also show ongoing challenges such as reliance on imported high technology components, high resource intensity; uneven efficiency among enterprises.

In conclusion, the electrical engineering sector has transitioned into a mature phase of growth, but sustainable development depends on more profound domestic production, innovation oriented production, and digitalisation. Long term competitiveness depends on building up technological capabilities and reducing reliance on imports. These findings offer practical guidance for policymakers and investors, detailing priority areas for both industrial policy and investment strategies.

Keywords: electrical engineering industry, production efficiency, export potential, industrial modernization, innovation, sector development

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1. Introduction

The electrical engineering sector holds strategic importance in industrial economics, as it is closely interconnected with energy, construction, transport, telecommunications, and household appliance manufacturing. In modern economic conditions, the electrical engineering industry is considered one of the key indicators determining a country's level of technological development. This sector has significant potential to generate high value added and plays an important role in increasing export capacity and ensuring industrial diversification [1].

The electrical engineering industry is one of the fundamental sectors of the modern economy, supplying equipment and technologies for energy, construction, household

appliances, and digital technologies. In Uzbekistan, this sector has become a priority area within the framework of the "New Uzbekistan" development strategy. Between 2017 and 2023, production volume increased by 7.1 times, while exports grew by 5.5 times. Currently, more than 900 enterprises operate in the sector, the majority of which are privately owned. The purpose of this article is to conduct a systematic analysis of enterprise activities, identify successful practices, and determine the key directions for further development [2]. The research is based on data from the "O'zeltexsanoat" Association and official government documents.

In recent years, the development of the electrical engineering industry in Uzbekistan has become one of the priority directions of state economic policy. In particular, a number of state programs aimed at expanding production capacity, establishing new enterprises, diversifying export geography, and accelerating technological modernization have been implemented. As a result, production volumes and investment activity in the sector have increased significantly.

At the same time, certain challenges remain in the sector's development. In particular, dependence on imports of some high-tech components, a high level of energy intensity, and relatively low production efficiency in some enterprises are still observed. Therefore, conducting a comprehensive economic analysis of the activities of electrical engineering industry enterprises is of great importance for determining the future development prospects of the sector [3], [4]. The aim of this article is to conduct an economic analysis of the activities of electrical engineering industry enterprises in Uzbekistan and to identify the key trends in the development of the sector.

2. Methods

Modern methods of economic analysis were employed in the course of the research. In particular, statistical analysis, comparative analysis, quantitative analysis (growth indicators and investment volumes), qualitative analysis (enterprise structure and product types), and the comparative method (changes during the period 2017–2025) were applied. Primary data such as surveys were not used, as the study is primarily based on macroeconomic analysis. In addition, the time-series method and comprehensive evaluation of economic indicators were utilized.

The database for the study consisted of statistical data obtained from the Statistics Agency of the Republic of Uzbekistan, the Ministry of Investments, Industry and Trade, as well as open economic data sources [5]. Indicators such as production volume, export–import performance, investment levels, and financial results of enterprises were used as the main variables for assessing the sector's activity.

Furthermore, the economic efficiency of electrical engineering industry enterprises was evaluated through the analysis of profitability indicators, liquidity levels, and cost structure. This approach made it possible to form a comprehensive assessment of the sector's overall performance.

3. Results and Statistical Analysis

According to the results of the analysis, it was determined that the electrical engineering industry of Uzbekistan has entered a stage of stable development in recent years. During the period 2022–2024, the sector's production volume increased significantly, and its share in total industrial production has been steadily growing.

Export indicators also demonstrate a positive dynamic. In recent years, exports of cable products, household electronics, and electrical equipment have been directed to the markets of Central Asia, the CIS countries, and several European countries [6], [7]. At the same time, new production capacities are being established in the sector, and processes of technological modernization are actively being implemented.

Currently, about 900–1000 enterprises operate in the electrical engineering industry of Uzbekistan, the majority of which belong to small and medium-sized businesses. A total of 76 large enterprises (including 18 cable and wire manufacturers, 27 household appliance producers, and 32 manufacturers of electrical equipment and devices) provide more than 90% of total industrial output and are members of the "O'zeltexsanoat" Association. The sector employs more than 35 thousand people, and more than 13 thousand new jobs have been created in recent years.

Production volume increased by 7.1 times between 2017 and 2023, reaching 1.98 billion US dollars (cable and copper products – 792 million USD, household appliances – 633 million USD, and power and technical equipment – 567 million USD). In 2024, production is expected to reach 31 trillion UZS (approximately 2.5 billion USD), while by 2027 it is projected to reach 58 trillion UZS. Currently, the sector produces more than 2,000 types of products, including washing machines, refrigerators, air conditioners, cable and wire products, transformers, smart meters, and components for solar panels [8].

Exports increased 5.5 times between 2017 and 2023, reaching 1.047 billion USD. Products are exported to nearly 70 countries and include about 200 types of goods. Export volumes are expected to reach 1.2 billion USD in 2024 and 1.7 billion USD in 2025, with a strategic target of 3.0 billion USD by 2026–2027. The main export destinations include Russia, Tajikistan, Kazakhstan, and European countries (through the GSP+ trade regime).

Investment activity in the sector has also increased significantly. Over the past seven years, investments have reached 935 million USD, including 400 million USD in foreign direct investment. A total of 260 projects worth more than 800 million USD have been implemented. For the period 2024–2026, another 294 projects worth more than 4 billion USD are planned [9].

The electrical engineering industry is one of the key sectors of the modern industrial economy and develops in close interaction with energy, telecommunications, construction, and household appliance manufacturing. The development dynamics of this sector reflect the level of technological modernization, investment activity, and export potential growth in the country. Therefore, analyzing the main indicators of the electrical engineering industry in Uzbekistan during the period 2017–2025 is essential for identifying development trends and determining strategic priorities for the future. The data presented in the table allow for a comprehensive assessment of the sector's economic growth through the analysis of the number of enterprises, production volumes, export performance, and job creation dynamics.

Table 1

Main indicators of the electrical engineering industry (2017–2025, dynamics)

Year	Number of Enterprises (approx)	Production Volume (billion USD)	Export Volume (million USD)	Change
2017	200–300	0.28	190	Initial stage
2023	900	1.98	1 047	7.1-fold growth (production)
2024	900–1000	2.1–2.5	1.2	9-month result: 2.8 billion USD

				(34 trillion UZS)
2025	1000	2.8–3.0	1.7	Data at the beginning of 2025
2027 (forecast)	–	4.8 (58 trillion UZS)	3 000	Government development plans

According to the data presented in Table 1, a significant development trend has been observed in the electrical engineering industry of Uzbekistan during the period 2017–2025. In 2017, the number of enterprises operating in the sector was approximately 200–300, whereas by 2023 this figure had reached around 900. This indicates that within a relatively short period the number of enterprises in the sector increased several times [10]. Such growth can be explained by the government's policy of industrial diversification, improvements in the investment climate, and various measures aimed at supporting domestic producers.

The dynamics of production volume also represent an important indicator of the sector's development. In 2017, the production volume of electrical engineering products was approximately 0.28 billion USD, while by 2023 it had reached 1.98 billion USD. This corresponds to roughly a sevenfold increase. In 2024, production volume increased to about 2.1–2.5 billion USD, and it is expected to reach 2.8–3.0 billion USD by 2025. This trend indicates a stable growth in production volumes as a result of technological modernization and the expansion of production capacities in the sector [11], [12].

Export indicators also demonstrate the increasing competitiveness of the electrical engineering industry in international markets. For instance, sector exports amounted to around 190 million USD in 2017, while by 2023 they had increased to 1.047 billion USD. In the following years, the upward trend in export volume is expected to continue, reaching approximately 1.2 billion USD in 2024 and 1.7 billion USD in 2025. This suggests that the demand for electrical engineering products from Uzbekistan in international markets is steadily increasing.

At the same time, the development of the electrical engineering industry has had a positive impact on job creation [13]. In 2023 alone, more than 13 thousand new jobs were created in the sector. This demonstrates that the industry plays an important socio-economic role in addition to contributing to economic growth. According to state development programs, production volume is planned to reach 4.8 billion USD by 2027, while exports are expected to increase to approximately 3 billion USD.

Overall, the results of the analysis show that the electrical engineering industry of Uzbekistan has entered a stage of rapid development. The increase in the number of enterprises, growth in production volumes, and expansion of export potential indicate rising levels of investment and innovation activity within the sector. At the same time, in order to further strengthen the competitiveness of the industry, it is necessary to expand the production of high-technology products, increase the level of localization, and accelerate the digitalization of production processes [14].

Examples of large enterprises in the sector include:

Artel Electronics – a leading manufacturer of household appliances that has increased exports of refrigerators and washing machines by 15 times.

Sam-Ferre (Samarkand region) – a member of the "O'zeltexsanoat" Association, whose exports reached 6 million USD in 2024, including 2 million USD exported to Tajikistan.

Enterprises cooperating with Samsung – producing refrigerators and washing machines under the Samsung brand.

18 enterprises producing cables and transformers – supplying both high- and low-voltage electrical equipment.

Financial analysis of enterprise activities indicates that profitability indicators remain stable in several leading companies. For example, enterprises operating in the cable manufacturing segment demonstrate relatively high growth rates in both production volume and revenue.

However, the share of imports remains relatively high in certain product segments [15]. In particular, the import of complex electronic components and high-technology equipment remains one of the factors influencing the development of the sector.

4. Discussion

The obtained results indicate that the main drivers of the development of Uzbekistan's electrical engineering industry are government support measures, improvements in the investment climate, and an export-oriented industrial policy. In recent years, the sector has demonstrated stable growth due to the implementation of state programs aimed at industrial diversification, technological modernization, and the expansion of export potential.

The electrical engineering industry has become one of the most dynamic sectors of Uzbekistan's economy. Through the activities of the "O'zeltexsanoat" Association, cooperation among enterprises has significantly strengthened, which has contributed to import substitution and increased export potential. Government incentives, including investment support, tax preferences (such as a 0% profit tax for certain projects), customs privileges, and the development of technoparks, have stimulated the implementation of high-technology projects. In particular, initiatives related to digitalization and innovation platforms such as "Eltech Lab" are contributing to technological upgrading and the introduction of modern production solutions.

However, several challenges remain within the sector. Small and medium-sized enterprises still lag behind technologically compared to large industrial producers, while dependence on foreign technologies continues to persist. In addition, the shortage of highly qualified specialists represents another constraint to sustainable development. Expanding export geography—particularly to European and South Asian markets—and increasing the share of value added in production to around 30% remain key strategic objectives. The Presidential Resolution PQ-20 (2025) aims to address these issues through the development of engineering schools, the provision of grants, and the introduction of local procurement requirements.

At the same time, accelerating technological modernization is essential for improving the efficiency of the sector. The introduction of digital technologies, automated production lines, and energy-efficient manufacturing processes can significantly reduce production costs and increase overall productivity. These measures also enhance product quality and competitiveness in international markets.

Furthermore, increasing the level of localization plays a crucial role in ensuring the long-term stability of the industry. In particular, the local production of high-technology components can reduce dependence on imports and strengthen the domestic industrial base. Localization policies also create additional opportunities for technological learning and the development of national manufacturing capabilities.

In the long term, the sustainable development of Uzbekistan's electrical engineering industry will depend on strengthening scientific research and innovation activities,

expanding international technological cooperation, and diversifying export markets. These measures will enable the sector not only to maintain its current growth trajectory but also to enhance its competitiveness in the global electrical engineering market.

5. Conclusion

The analysis of the activities of electrical engineering enterprises in Uzbekistan shows that the sector is developing rapidly. The number of enterprises has increased significantly, while production and export indicators have reached record levels. The "O'zeltexsanoat" Association and government support measures play a key role in stimulating the development of the industry.

If the planned targets are achieved—namely increasing production to 58 trillion UZS and exports to 3 billion USD by 2027—the electrical engineering industry has the potential to become one of the leading drivers of the national economy.

The results of this research have practical significance for policymakers and investors, as they provide a comprehensive assessment of the current state and development prospects of the sector. Furthermore, the findings may serve as a methodological and analytical basis for future scientific studies related to the development and competitiveness of the electrical engineering industry.

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