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The role and strategic importance of the oil and gas industry in Uzbekistan’s economy

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The role and strategic importance of the oil and gas industry in Uzbekistan's economy

Sarvinoz Salomova [a)], Tursunov Alisher, Matlyuba Saidkarimova, Latofat Karieva, Abdurashid Abdulazizov, Dilmurod Juraev

Tashkent state technical university named after Islam Karimov, Tashkent, Uzbekistan

[a)] *Corresponding author: salomovass87@gmail.com*

Abstract. This article examines the role of the oil and gas industry in the economy of Uzbekistan and analyzes its strategic significance at both national and international levels. The study is based on statistical data and provides an assessment of the country's hydrocarbon resource base, production and processing capacities, export potential, transit and geo-economic opportunities, as well as the impact of the sector on key macroeconomic indicators. The research findings demonstrate that the strategic function of the oil and gas industry in Uzbekistan's economy is manifested through its contribution to macroeconomic stability, the formation of foreign currency revenues, the strengthening of energy security, and the creation of added value through the development of downstream and processing industries. The article scientifically substantiates that digitalization of the sector, improvements in energy efficiency, diversification of export markets, and participation in international energy projects contribute to enhancing Uzbekistan's competitiveness within the global energy system.

INTRODUCTION

The oil and gas industry is one of the most critical backbone sectors of the modern economy, exerting a direct influence on national economic stability, energy security, and the growth of key macroeconomic indicators. Geo-economic processes unfolding around hydrocarbon resources in global markets, volatility in energy prices, the implementation of global energy transition policies, and the shift toward a "green economy" are creating new strategic challenges and opportunities for developing countries such as Uzbekistan.

Uzbekistan's oil and gas sector has been established as one of the principal sources of national income, accounting for approximately 10–12% of gross domestic product and nearly 25% of industrial output (data of the Ministry of Energy of the Republic of Uzbekistan, 2024). In recent years, natural gas production has remained at around 54–56 billion cubic meters annually, while oil and gas condensate production has averaged 1.8–2.0 million tons. These indicators position Uzbekistan as one of the leading energy centers in the Central Asian region.

The relevance of this study lies in the fact that the oil and gas industry plays a decisive role in the structural transformation of Uzbekistan's economy, investment policy formation, export diversification, domestic energy supply, and processes of international energy integration. Therefore, a scientifically grounded assessment of the sector's role in the national economy, along with an analysis of its existing potential and strategic advantages, is of significant scientific and practical importance.

EXPERIMENTAL RESEARCH

In order to significantly increase the country's oil refining capacity, a decision was made to construct the Fergana Oil Refinery, which commenced operations in 1959. The Fergana refinery has a processing capacity of approximately 114,288 barrels per day and produces a wide range of petroleum products, including gasoline, liquefied petroleum gas, fuel oil (including aviation fuel), sulfur, and solvents. The second major oil refinery was commissioned more recently. The Bukhara Oil Refinery was constructed in 1997 and currently has a processing capacity of 50,000 barrels per day, with the potential to expand capacity to 110,495 barrels per day. Its main products include gasoline, diesel

fuel, liquefied petroleum gas (LPG), and fuel oil [1]. The combined capacity of these refineries enables Uzbekistan not only to fully meet domestic demand for petroleum products, but also to export refined products to external markets.

However, in recent years, declining oil production has resulted in the utilization of only about 60% of the installed refining capacity. Moreover, further reductions in domestic oil production are projected. As a consequence, Uzbekistan has transitioned from being a net exporter of crude oil for refining purposes to a net importer of crude oil to supply its refineries.

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However, in recent years, a decline in crude oil production has resulted in the utilization of only about 60% of the available refining capacity. Moreover, further reductions in domestic oil production are forecast. As a consequence, Uzbekistan has transitioned from being a net exporter of crude oil for domestic refining to a net importer of crude oil for its refineries.

Two major oil pipeline systems connect Uzbekistan with Russia and Kazakhstan for the transportation of crude oil and petroleum products: the Omsk–Shymkent–Bukhara oil pipeline and the Shymkent–Tashkent petroleum products pipeline. The first pipeline transports crude oil from Omsk in Siberia through Pavlodar, Karaganda, and Shymkent to Uzbekistan. Within Uzbekistan, the pipeline passes through the Nurata and Navoi regions to the Bukhara Oil Refinery, after which crude oil is further transported to the Chardzhou Oil Refinery in Turkmenistan. The Shymkent–Tashkent pipeline originates at the Shymkent Oil Refinery in Kazakhstan and supplies petroleum products to Tashkent. This pipeline is primarily used for importing relatively small volumes of gasoline and other refined products. Although domestic crude oil is processed at the Bukhara (Southwestern) and Fergana (Eastern) refineries, importing refined petroleum products from Shymkent is considered economically efficient for supplying the city of Tashkent. Russia and Kazakhstan therefore remain the two main suppliers of refined fuels to the Uzbek capital.

Oil production volumes constitute one of the key determinants of national energy security, economic stability, and export potential. Between 2010 and 2023, oil production levels in Uzbekistan underwent significant fluctuations. Figure 1 illustrates the dynamics of oil production during this period, reflecting not only statistical changes but also the tangible effects of economic reforms, external market conditions, domestic resource utilization policies, and processes of energy diversification. In recent years, the absence of newly discovered large oil fields has prompted the country to pursue increased production by intensifying extraction rates at existing fields (Figure 1).

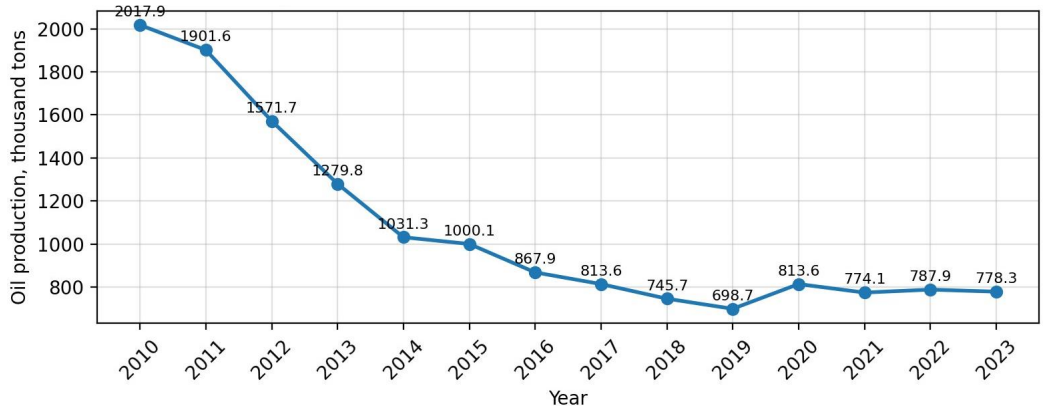

FIGURE 1. Oil production dynamics in Uzbekistan (2010–2023).

An examination of the data presented in Figure 1 indicates that crude oil production in Uzbekistan has declined substantially in recent years. In particular, oil production in 2023 decreased by 61.3% compared to its 2010 level.

Over the period 2010–2023, crude oil production in Uzbekistan exhibited a persistent downward trend. Output declined from 2.017 million tons in 2010 to 778 thousand tons in 2023, representing an overall reduction by nearly 2.6 times. The most pronounced decline occurred during 2010–2015, primarily due to natural depletion of mature oil fields, insufficient volumes of deep drilling operations, and a slowdown in investment activity within the sector. Although production levels stabilized to some extent after 2019, the overall trajectory has continued to follow a downward trend.

From a scientific perspective, this decline can be explained by a combination of factors, including the depletion of geological reserves, limited investment inflows, delays in technological modernization, and changes in market conditions. The sharp reduction in oil production volumes reinforces the need for diversification of national economic policy. In particular, greater emphasis on renewable energy sources, the development of gas-chemical industries, and the expansion of oil refining capacities emerge as key strategic priorities.

International experience demonstrates that a decline in oil production, when managed effectively, can represent not an economic threat but an opportunity for structural diversification. For example, in Norway, revenues generated from natural resources are accumulated in sovereign wealth funds, ensuring long-term macroeconomic stability. In the case of Uzbekistan, this experience underscores the necessity of maximizing the economic value of resource utilization, pursuing a sustainable fiscal policy, and improving the overall investment climate.

Between 2010 and 2023, oil production in Uzbekistan declined sharply from approximately 2.0 million tons to 0.78 million tons. This trend highlights the need to reassess national energy policy priorities, accelerate economic diversification, and intensify technological modernization processes within the energy sector. The reduction in oil output reflects a combination of geological depletion of mature fields, limited investment inflows, delayed technological upgrades, and changing market conditions.

The national energy company “Uzbekneftegaz” has indicated that the application of advanced technologies could potentially increase oil recovery rates at existing fields by up to 56%. To facilitate this objective, the government has implemented measures to attract greater volumes of foreign investment, including the establishment of a more favorable tax regime for investors. International oil companies engaged in exploration activities are exempt from certain taxes, including profit taxes during the initial seven years of production, as well as property and income taxes related to joint venture shares [2]. Nevertheless, despite these incentives, overall oil production continues to decline, and further reductions are projected over the next decade.

Uzbekistan’s proven natural gas reserves are estimated at approximately 1.6–1.8 trillion cubic meters, placing the country among the world’s top 20 nations in terms of gas reserves. In contrast, proven oil reserves amount to around 5.9 billion barrels, representing only 0.036% of global oil reserves. These indicators suggest that Uzbekistan possesses strong potential in natural gas production and export, while its oil export capacity remains comparatively limited. Consequently, the strategic emphasis of the national energy policy is increasingly shifting toward gas-based development, downstream processing, and the expansion of value-added energy industries.

In 2023, Uzbekistan’s energy balance was structured as follows:

88% — natural gas,

6% — petroleum products,

6% — coal and renewable energy sources.

This structure indicates a high degree of dependence of the national economy on natural gas, elevating the modernization of the gas sector to the level of a national strategic priority.

As of 2024, the oil and gas sector accounts for 10–12% of gross domestic product, approximately 25% of industrial output, and nearly 40% of export revenues when both direct exports and downstream processing industries are considered. Furthermore, the oil and gas sector contributes up to 30% of total state budget revenues, underscoring its role as a key fiscal pillar of economic stability.

The government has also announced plans to halt natural gas exports by 2025 and to redirect all domestically produced hydrocarbons toward the manufacture of higher value-added products. In this context, Uzbekistan plans to complete 52 gas-processing projects with a total investment value of USD 9 billion by 2025. The implementation of these projects is expected to facilitate the production of goods worth USD 4.1 billion, achieve USD 14 billion in import substitution, and generate up to USD 14 billion in export revenues. By 2026, Uzbekistan aims to process 20% of its natural gas output, compared to the current level of approximately 8%.

On 25 May 2023, Air Products announced a USD 1 billion investment in Uzbekistan to acquire, own, and operate a syngas production unit at the advanced gas-to-liquids (GTL) facility of Uzbekneftegaz JSC, designed to produce 1.5 million tons per year of high value-added synthetic fuels. This project represents a significant milestone in the country’s strategy to deepen hydrocarbon processing, enhance technological sophistication, and strengthen Uzbekistan’s position within the global energy value chain.

The energy market in Uzbekistan is undergoing a gradual process of liberalization. Customs duties and permit requirements for the import of liquefied gas were abolished starting from February 2021. Wholesale markets for electricity and natural gas are being established for producers and importers, and as an initial step, large enterprises have been permitted to import electricity and natural gas since August 1, 2021. From October 1, 2021, the excise tax rate on natural gas exports was reduced to zero, and legal entities were exempted from both customs duties and excise taxes on natural gas imported into Uzbekistan. Furthermore, the private sector was authorized, starting from October 1, 2023, to supply liquefied petroleum gas and natural gas directly to consumers.

In order to achieve a gradual liberalization of prices, President Mirziyoyev approved the phased introduction of independent market regulators in sectors characterized by natural monopolies and strategic infrastructure, including electricity, natural gas, aviation, rail transport, and civil communications and services. By January 1, 2025, the functions of regulating and supervising tariffs of natural monopoly entities, currently exercised by the Competition Committee, are planned to be gradually transferred to newly established independent market regulatory bodies.

Within the structure of Uzbekistan's economy, the oil and gas sector holds strategic importance, serving as a decisive factor in shaping the country's gross domestic product, foreign exchange earnings, and external trade balance. During the period 2020–2023, a steady expansion of the national oil and gas market was observed. This growth was driven not only by increases in production volumes, but also by the expansion of export potential, changes in the composition of imports, and fluctuations in exchange rates. The indicators presented in the table provide a significant statistical basis for assessing the outcomes of economic reforms, external market conditions, and the state's energy policy [4].

TABLE 1. Size of the oil and gas market in Uzbekistan, million USD

Indicator	2020	2021	2022	2023
Total domestic production	3,282	4,138	4,751	5,300
Total exports	659	915	1222	1,500
Total imports	1,107	1,557	1,794	2200
Imports from the United States	41	20	14	None
Total market size*	3,730	4,780	5,323	6,000
Exchange rate**	10,056	10,610	11,051	11,600

* Total market size = (Total domestic production + Total imports) – Total exports.

** Exchange rate expressed as Uzbek soums per 1 USD.

All monetary values are presented in million US dollars.

According to the data presented in Table 1, total domestic production amounted to USD 3,282 million in 2020 and increased to USD 5,300 million by 2023. This represents a growth of 61.5%, indicating improved efficiency in the utilization of domestic resources. The observed upward trend reflects the strengthening of production capacity within the national oil and gas sector.

Export performance also demonstrated significant growth over the analyzed period. Export revenues increased from USD 659 million in 2020 to USD 1,500 million in 2023, representing an almost 2.3-fold increase. This dynamic indicates a substantial improvement in the international competitiveness of Uzbekistan's oil and gas products and an expansion of the country's presence in external energy markets.

Import volumes exhibited a notable rise as well, increasing from USD 1,107 million in 2020 to USD 2,200 million in 2023. This trend reflects strong domestic demand for oil and gas products and simultaneously suggests that existing refining and processing capacities have not yet reached their full operational efficiency.

A particularly noteworthy aspect is the change in imports from the United States. While imports from the U.S. amounted to USD 41 million in 2020, they had completely ceased by 2023. This shift indicates an ongoing diversification of Uzbekistan's foreign trade partnerships and a reorientation of import sources within the oil and gas sector.

According to the data presented in Table 1, total domestic production amounted to USD 3,282 million in 2020 and increased to USD 5,300 million by 2023. This represents a growth of 61.5%, indicating a significant improvement in the efficiency of utilizing domestic resources.

Export volumes increased from USD 659 million in 2020 to USD 1,500 million in 2023, reflecting nearly a 2.3-fold growth. This trend demonstrates the rising competitiveness of Uzbekistan's oil and gas products in international markets.

Import volumes also showed substantial growth, rising from USD 1,107 million in 2020 to USD 2,200 million in 2023. This indicates strong domestic demand and suggests that existing refining and processing capacities have not yet reached their full operational efficiency.

A noteworthy aspect is the change in imports from the United States. While imports amounted to USD 41 million in 2020, they completely ceased by 2023. This development reflects a diversification of Uzbekistan's foreign trade partners and a restructuring of import sources.

The total market size expanded from USD 3,730 million in 2020 to USD 6,000 million in 2023, corresponding to a growth rate of 60.9%. This trend underscores the strengthening strategic role of the oil and gas sector within the national economy.

Exchange rate dynamics are also significant. The Uzbek som depreciated from 10,056 UZS/USD in 2020 to 11,600 UZS/USD in 2023, representing an approximate 15% devaluation. While this increased import costs, it simultaneously contributed to higher export revenues when measured in national currency.

Overall, the data in Table 1 indicate that oil and gas production in Uzbekistan plays a decisive role not only in meeting domestic demand but also in balancing the structure of exports and imports. The growth in exports improves the country's foreign trade balance; however, the parallel increase in imports suggests a continued dependence on external resources. This highlights the necessity of strategic diversification and increased investment in new extraction and processing capacities.

The increase in exchange rates has had a dual impact on economic stability. On the one hand, it has led to higher import costs; on the other hand, it has enhanced the competitiveness of exporters by increasing export revenues in national currency terms. From an academic perspective, the indicators presented in the table clearly illustrate the "dual effect" characteristic of resource-based economies: growth in production and exports contributes to overall economic expansion, while rising import volumes reflect structural gaps in domestic production, particularly in technology-intensive goods and refined products.

The expansion of the total market size by approximately USD 2.3 billion between 2020 and 2023 indicates that transformation processes in Uzbekistan's energy market are yielding tangible results. Although, in comparison with international benchmarks, the overall size of Uzbekistan's oil and gas market remains relatively modest, its high growth rate creates favorable conditions for strengthening the country's position as a strategic player in the regional energy market.

During the period from 2020 to 2023, Uzbekistan's oil and gas market demonstrated consistent growth, reflected in increased production and export volumes and an expansion of the total market size by nearly 61%. At the same time, persistently high import volumes highlight the continued dependence on external resources and underscore the necessity of accelerating diversification policies and expanding domestic processing capacities. The dynamics of exchange rates further complicate the economic effects of foreign trade relations, reinforcing the importance of a balanced and forward-looking energy and macroeconomic policy.

The Republic of Uzbekistan belongs to the group of countries rich in natural resources, as these resources play a decisive role in ensuring national energy security, increasing export revenues, and supplying raw materials to other industrial sectors. The oil and gas industry holds strategic importance in shaping the country's economic potential and ensuring its sustainable growth. In particular, hydrocarbon reserves and the capacity for their processing serve as one of the key drivers of the national economy. In recent years, Uzbekistan has implemented a series of reforms aimed at restructuring the oil and gas sector, attracting foreign investment, and promoting technological modernization.

The oil and gas complex accounts for approximately 10–12% of the country's gross domestic product (GDP) and covers more than 80% of the energy sector. The industry plays a crucial role not only in meeting domestic energy demand but also in generating foreign currency revenues through the export of natural gas to China, Russia, and other neighboring countries. For instance, since 2010 Uzbekistan has been exporting up to 10 billion cubic meters of natural gas annually to China via the "Central Asia–China" gas pipeline, which constitutes a significant component of the country's export portfolio.

Within the framework of economic reforms implemented for the period 2020–2024, the oil and gas sector occupies a central position in expanding export potential and satisfying domestic market demand. However, the industry continues to face several challenges, including insufficient geological exploration activity, depletion of existing fields, limited refining and processing capacities, and increasing competitive pressure in external markets. Addressing these challenges is essential for strengthening the long-term sustainability and competitiveness of Uzbekistan's oil and gas sector in the global energy system.

The Republic of Uzbekistan is classified among countries rich in natural resources, as these resources play a key role in ensuring national energy security, increasing export revenues, and supplying raw materials to other industrial sectors. The oil and gas industry holds strategic importance in shaping the country's economic potential and ensuring

sustainable economic growth. In particular, hydrocarbon reserves and their processing capacity serve as one of the principal drivers of national economic development. In recent years, Uzbekistan has implemented a series of reforms aimed at restructuring the oil and gas sector, attracting foreign investment, and advancing technological modernization.

The oil and gas complex accounts for approximately 10–12% of the country's gross domestic product (GDP) and covers more than 80% of the energy sector. Beyond meeting domestic demand, the industry plays a significant role in generating foreign currency revenues through natural gas exports to China, Russia, and other neighboring countries. For instance, since 2010 Uzbekistan has been exporting up to 10 billion cubic meters of natural gas annually to China via the "Central Asia–China" gas pipeline, which constitutes a substantial component of the country's export portfolio.

Within the framework of economic reforms for the period 2020–2024, the oil and gas sector occupies a central position in expanding export potential and satisfying domestic market demand. Nevertheless, the industry continues to face a number of challenges, including insufficient geological exploration activity, depletion of mature fields, limited processing capacity, and increasing competitive pressure in external markets.

In addition, global trends toward renewable energy and stricter environmental requirements necessitate a reassessment of strategic approaches in the oil and gas sector. Under these conditions, rational resource utilization, the introduction of advanced technologies, and further improvement of the investment climate remain critical priorities for Uzbekistan.

The oil and gas industry also serves as a primary source of raw materials for other sectors of the economy, including the chemical industry, agriculture (particularly nitrogen fertilizer production), and transportation. Joint Stock Company "Uzbekneftegaz" acts as the main operator of the sector, contributing to the creation of millions of jobs and supporting social welfare across the country. At the same time, the industry makes a substantial contribution to the state budget through taxes and customs revenues, which play a crucial role in financing social development programs.

Uzbekistan has undertaken a range of measures aimed at attracting foreign investment and implementing technological modernization. In this context, "Uzbekneftegaz" JSC is implementing large-scale projects in cooperation with major international companies, including Russia's Lukoil and Gazprom, South Korea's KNOC and KOGAS, China's CNODC, and South Africa's Sasol.

Furthermore, a gas processing complex is being constructed by Surhan Gas Chemical Company at the "25 Years of Independence" fields in the Surkhandarya region. The project involves an investment of USD 1.45 billion, with full commissioning expected in 2025. The facility is being developed based on modern technologies provided by Shell and complies with advanced environmental standards.

In addition, the Uzbekistan GTL plant in the Kashkadarya region is focused on the production of synthetic liquid fuels, with a total project cost of USD 3.4 billion. The plant has an annual production capacity of 863 thousand tons of diesel fuel, 304 thousand tons of kerosene, and 393 thousand tons of naphtha.

By 2025, a series of reforms and modernization processes are being implemented in Uzbekistan's oil and gas industry. The country plans to increase natural gas production to 66.1 billion cubic meters by 2030, which is intended to fully meet domestic consumption (56.5 billion cubic meters) and expand export opportunities. Investment projects implemented by Uzbekneftegaz JSC, particularly those focused on deep gas processing and the production of high value-added products such as polyethylene and polypropylene, are contributing to improved sectoral efficiency. For example, the Shurtan and Ustyurt gas-chemical complexes generate products worth approximately USD 700 million annually, creating value added that is nearly four times higher than that of raw gas exports.

Nevertheless, the sector continues to face a number of challenges. In recent years, the reserve replacement ratio for natural gas has remained at around 70%, posing risks to long-term sustainability. In addition, volatility in global oil prices and the aging of domestic infrastructure exert pressure on financial stability. For instance, the global oil price crisis of 2020 had a negative impact on the financial performance of Uzbekneftegaz JSC. In response to these challenges, the government is introducing market-based mechanisms, including the development of a draft Law "On Gas Supply," aimed at strengthening competition and attracting private investment.

RESEARCH RESULTS

Uzbekistan's fuel and energy sector constitutes one of the core pillars of the national economy, playing a decisive role in ensuring energy security, expanding export potential, and providing stable energy supplies to industrial sectors. Over the period 2010–2023, electricity generation, coal production, natural gas extraction, and oil and gas condensate output exhibited diverse trends. The tabulated data reflect not only the dynamics of extraction volumes, but also

internal diversification processes within the sector, as well as the influence of global market conditions and technological development on the national economy [4].

During 2010–2023, significant structural changes were observed in Uzbekistan's oil and gas industry, underscoring its growing importance within both the energy sector and the broader economy (Table 2).

TABLE 2. Dynamics of the fuel and energy industry in Uzbekistan (2010–2023)

Year	Electricity generation, million kWh	Coal production, thousand tons	Natural gas production, million m³	Oil production, thousand tons	Gas condensate, thousand tons
2010	51,976.3	3,629.4	65,958.5	2,017.9	2,019.5
2011	52,806.2	3,844.8	63,040.9	1,901.6	1,835.6
2012	52,999.6	3,752.9	61,531.0	1,571.7	1,765.4
2013	54,618.6	4,090.0	58,305.4	1,279.8	1,887.4
2014	55,766.0	4,396.9	54,161.2	1,031.3	1,835.8
2015	57,658.1	3,488.0	54,600.5	1,000.1	1,728.0
2016	59,100.5	3,867.3	56,132.1	867.9	1,747.5
2017	60,820.1	4,038.6	56,642.2	813.6	1,953.0
2018	62,896.6	4,174.4	61,585.5	745.7	2,145.2
2019	63,531.6	4,047.9	60,711.9	698.7	2,116.7
2020	66,500.7	4,133.1	49,768.2	813.6	1,291.0
2021	71,364.6	5,056.3	53,502.0	774.1	1,323.9
2022	74,269.3	5,356.2	51,678.4	787.9	1,287.1
2023	78,005.4	6,519.6	46,710.4	778.3	1,199.4

Based on the data presented in Table 2, natural gas production in Uzbekistan amounted to 65,958.5 million cubic meters in 2010; however, by 2023 this figure had declined to 46,710.4 million cubic meters, representing a decrease of 29.2%. An analysis of the available data suggests that this decline can be attributed primarily to the natural depletion of existing gas fields, as well as financial and technological constraints associated with the development and commissioning of new deposits. As a consequence, export potential has been reduced, which has a direct negative impact on the country's foreign exchange earnings.

Oil production has experienced an even more pronounced decline. In 2010, oil output reached 2,017.9 thousand tons, whereas by 2023 it had fallen to 778.3 thousand tons, corresponding to a reduction of 61.3%. This trend can be explained by the depletion of proven oil reserves, the aging of extraction infrastructure, and persistent financial constraints within the sector. The temporary increase observed in 2020 (813.6 thousand tons) was largely associated with short-term measures aimed at meeting domestic market demand; nevertheless, the overall long-term trajectory of oil production remains downward.

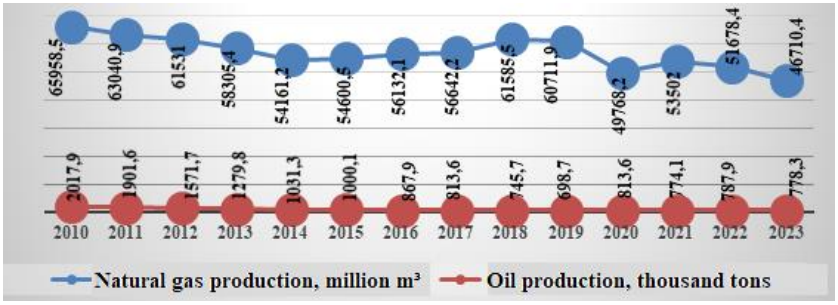

FIGURE 2. Dynamics of natural gas and oil production in the Republic (2010–2023).

From a scientific perspective, the observed reduction in hydrocarbon production underscores the structural challenges facing Uzbekistan's oil and gas sector and highlights the urgent need for technological modernization, increased investment in exploration activities, and diversification of the national energy portfolio in order to ensure

long-term energy security and macroeconomic stability.

Figure 2 illustrates the dynamics of natural gas and oil production in the Republic of Uzbekistan over the period 2010–2023. Natural gas production reached its highest level in 2010, followed by a gradual decline in subsequent years. A temporary increase was observed in 2018–2019; however, in the following period—particularly in 2023—a sharp decrease in production volumes occurred. A similar downward trend is evident in oil production, where output declined steadily after the relatively high level recorded in 2010.

Gas condensate production demonstrates a different trajectory. In 2010, production amounted to 2,019.5 thousand tons and increased to a peak of 2,145.2 thousand tons in 2018, reflecting the active development of the gas-chemical industry during this period. However, by 2023, gas condensate production declined to 1,199.4 thousand tons, representing a decrease of approximately 44%. This reduction is primarily associated with the overall contraction in natural gas extraction (Figure 3).

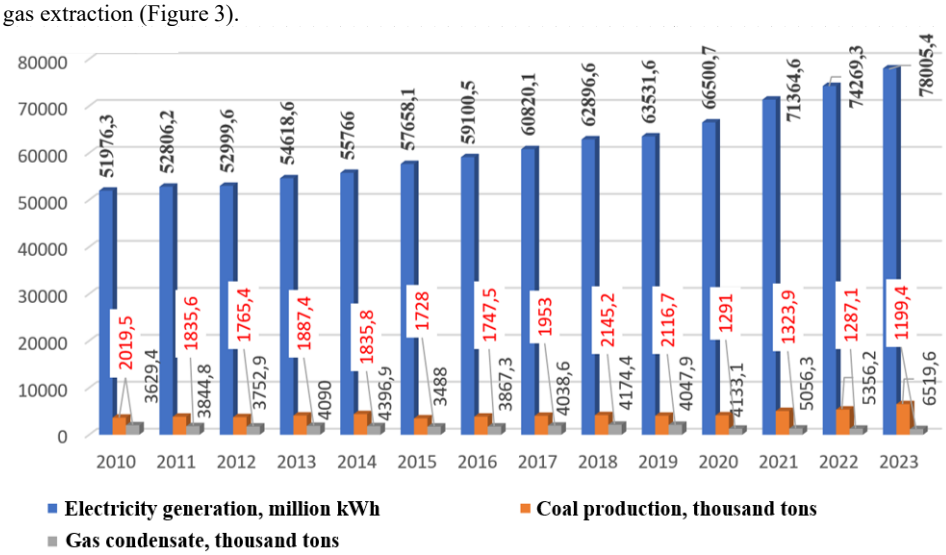

FIGURE 3. Dynamics of electricity generation and production of gas condensate and coal in Uzbekistan (2010-2023)

The graphical data indicate a steady increase in electricity generation in Uzbekistan over the period 2010–2023. Electricity production rose from 51,976 million kWh in 2010 to 78,005 million kWh in 2023, representing an increase of nearly 50% over thirteen years. This growth reflects the expansion of energy infrastructure, modernization of generation capacities, and a sustained rise in domestic electricity demand.

Coal production exhibits a more volatile pattern, with alternating periods of growth and decline; however, the overall trend is upward. Coal output increased from 3,629 thousand tons in 2010 to 5,356 thousand tons in 2022. Gas condensate production declined during 2010–2015, but began to recover after 2016 and reached 6,519 thousand tons by 2023. This dynamic indicates the growing role of coal and gas condensate as supplementary energy sources within Uzbekistan's national energy balance.

The data further demonstrate that while natural gas and crude oil production volumes have generally declined, electricity generation and coal production have followed a growth trajectory. This divergence suggests the implementation of an energy diversification strategy in Uzbekistan, aimed at reducing dependence on natural gas and increasing the relative contribution of coal and electricity generation to the overall energy mix.

CONCLUSIONS

The oil and gas industry occupies a strategically important position in the economy of Uzbekistan, performing a decisive function in ensuring macroeconomic stability, foreign currency revenues, export potential, and national energy security. While the energy model based on hydrocarbon resources continues to form the backbone of the national economy, the natural gas and oil sector increasingly acts as a key factor strengthening the country's

investment attractiveness, the level of value added in industrial production, and the development of external economic relations. The sector's substantial resource potential-estimated at 1.6–1.8 trillion cubic meters of natural gas and approximately 5.9 billion barrels of oil—not only positions Uzbekistan as one of the leading energy producers in the region, but also elevates its role as an important participant in the global energy system.

Overall, the transformation of the oil and gas industry is emerging as a principal driver of Uzbekistan's long-term strategic economic development. Through deep modernization of the sector, the introduction of advanced technologies, expansion of export capacity, and strengthening of international integration, Uzbekistan possesses significant potential to evolve from a regional energy hub into a globally relevant energy actor.

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