

## Article

# Institutional Transformation of the Gas Supply Sector

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**Abstract:** This study explores the gas supply sector through an institutional lens, focusing on the insights of economists analyzing industries within this framework. It examines reform measures, transaction costs, and the positive and negative factors influencing the sector, highlighting various approaches to institutional transformation. Addressing a gap in understanding institutional impacts on gas supply, the research aims to develop proposals that incorporate these aspects. Utilizing a qualitative methodology, the study identifies key institutional barriers and opportunities for improvement. Findings emphasize the critical role of reducing transaction costs and aligning reforms with institutional dynamics, offering practical implications for enhancing sector efficiency and sustainability.

**Keywords:** Institutional economics, Transaction costs, Transformation, Institution, Collective Learning, Path dependence, Strategy, Concept

## 1. Introduction

In recent years, large-scale reforms have been implemented aimed at the rapid development of all sectors of the economy, increasing investment attractiveness and business activity, expanding the production and service sectors, and improving the social sphere and the well-being of the population. The basis of the reforms being implemented in these areas is the stability and reliable supply of energy resources in the country. This requires an analysis of the natural gas supply sector from an institutional perspective and a deep study of the ways to implement its institutional transformation, taking into account the current development of the sector.

### Literature review.

To date, foreign scholars have conducted a number of research works on the analysis of institutional economic research and institutional transformation of the economy, which have focused on the study of the real situation in the economy and the development of concepts and various recommendations for the development of sectors. To understand the economic knowledge based on neo-institutionalism, D. North [1] emphasizes that people accumulate experience and practice over a long period of time as a society, and uses the term "collective learning" [2] to describe this process. This term refers to the body of knowledge that societies have tested over a long period of time and that is embodied in institutions, technologies, and methods of doing things. In turn, the body of knowledge

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based on “collective learning” and the process of passing on the accumulated knowledge to the next generation occurs.

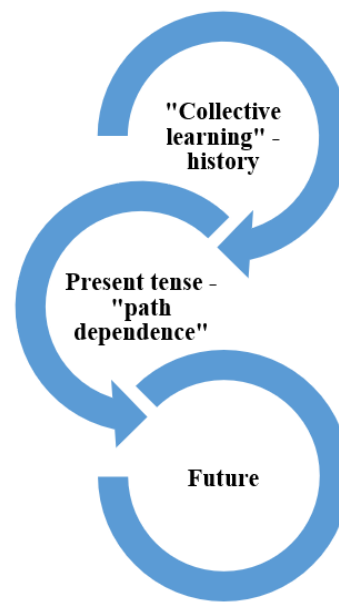


Figure 1. The formation of the problem of "path dependence"

To explain this process in one word, the term “path dependence” is introduced, which is used to describe the strong influence of history on the present and the future. In particular, it refers to the culture and relationships, values, customs, formal and informal rules that remain from history between people.

As a result of the study of each generation in the current “collective learning”, it determines the culture that has been passed down by society and determines any actions that benefit society based on “collective learning” including the gradual transfer of culture and values to the next generation, is formed.

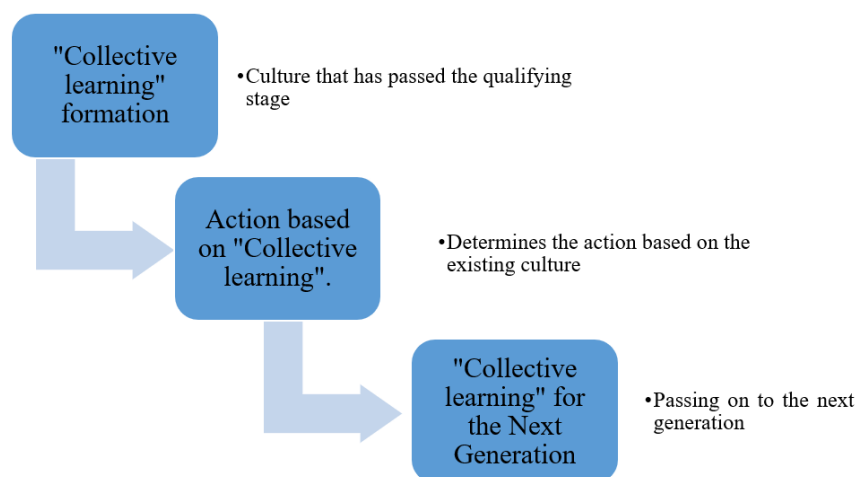


Figure 2. Stages of existence of "Collective learning"

It is worth noting that there is no guarantee that the experience of a society accumulated by its ancestors in the past will be suitable for solving new problems when the next generation encounters it. Societies that have stopped developing embody “collective learning”, culture, value systems and institutions that cannot cope with and solve new problems of social complexity.

A number of economists also say that the problem of “subordination to practice” leads to very high transformation costs and the ingrained and unchanging norms in society [3]. Scientists illustrate the problem of “subordination to practice” with the example of the famous QWERTY keyboard. In particular, the QWERTY keyboard was widely used and is still used today.

Although other types of keyboards and their key arrangements have been developed over time (the Dvorak keyboard is an example), we still use the QWERTY keyboard [4]. Another example is the standard size of railway tracks, with more than half of the world’s railway tracks being laid at 143.5 cm. Engineers have agreed that 143.5 cm is the standard size, despite the fact that other sizes of railway tracks could increase productivity and speed (in Uzbekistan and other CIS countries, railway tracks are laid at 152 cm) [5,6].

Engineers have shown that modern innovation is inefficient, but it shows how seemingly insignificant events or situations can change technological or societal choices in the long run [7]. This concept can be applied to any state, industry, sector, or economic agent, and can be analyzed institutionally.

## 2. Materials and Methods

The new (neo) discipline of institutional economics has produced a large literature on institutions and organizations. For example, Oliver Williamson views institutional structure as exogenous, studying various organizational forms based on transaction and transformation costs [18,19]. D. North studies the endogenous aspect and tries to explain institutions [20].

This article examines the endogenous aspect of the natural gas supply sector in accordance with the institutional approach of the above-mentioned scholars and analyzes the institutional framework and institutional matrix of the emergence of institutional changes in this sector.

The theoretical and methodological foundations of the study are based on the legislation of the Republic of Uzbekistan in this area, decrees of the President of the Republic of Uzbekistan, decrees of the Cabinet of Ministers, as well as scientific works of foreign scientists devoted to institutional economic theories. When writing the article, comparative, grouping, balanced and chain methods of economic analysis were used.

## 3. Results and Discussion

The “Uzbekistan-2030” strategy, developed based on the experience gained in the implementation of the new Uzbekistan Development Strategy and the results of public discussions, was approved by the Decree of the President of the Republic of Uzbekistan No. PD-158 dated September 11, 2023 “On the Strategy of Uzbekistan-2030”.

The 45th goal of the second priority direction of this strategy “Ensuring the well-being of the population through sustainable economic growth” is “to double the volume of the economy by 2030 and enter the ranks of “upper-middle-income countries”. The fact that the task of “consistently continuing transformation and institutional reforms in the economy, ensuring a favorable investment and business environment in the country, and implementing a balanced monetary policy” is specifically indicated as one of the strategic objectives in this direction indicates the relevance of the chosen topic [8].

The 52nd goal of the strategy is also to increase the volume of natural gas production to 62 billion cubic meters, modernize the infrastructure for distributing and delivering natural gas to consumers [8]. To achieve these indicators, we need to conduct a comprehensive analysis of the history, current state and future of the natural gas supply sector. The sector has a long history of multi-stage development and operates to meet the needs of the population and enterprises of various sectors of the economy. Since the years

of independence, one of the main organizations in this sector has been "Uztransgaz" Joint Stock Company.

"Uztransgaz" JSC In accordance with the Resolution No. 585 of the Cabinet of Ministers of the Republic of Uzbekistan dated December 23, 1992, the "Uztransgaz" State Association for the transportation of natural gas was established within the framework of the "Uzbekneftegaz" National Corporation, which was being formed at that time, on the basis of specialized divisions of the "Uzbekgazsanoat" Production Association [9].

In accordance with the Decree of the President of the Republic of Uzbekistan No. PD-2154 dated December 11, 1998 "On the transformation of the National Oil and Gas Industry Corporation "Uzbekneftegaz" into the National Holding Company "Uzbekneftegaz" and the Resolution No. 523 of the Cabinet of Ministers of the Republic of Uzbekistan "On the organization and activities of the National Holding Company "Uzbekneftegaz" dated December 15, 1998, the "Uztransgaz" Joint Stock Company was established in the form of an open joint-stock company on the basis of the "Uztransgaz" State Association [9].

In accordance with the Resolution of the President of the Republic of Uzbekistan No. PP-438 dated August 8, 2006 "On measures to improve the organization of the activities of the Uztransgaz Joint Stock Company", the activities of the Uztransgaz Joint Stock Company were reorganized in order to form a unified policy in the field of development and use of gas distribution networks, create an effective management system for the transportation and sale of natural gas to domestic consumers, as well as strengthen the rational use of natural gas and the discipline of payments for gas [9].

The reorganization of the activities of the Uztransgaz Joint Stock Company was carried out by transferring regional gas supply enterprises from the Uzbek Agency "Uzkommunkhizmat" to the Uztransgaz Joint Stock Company, and on the basis of regional gas supply enterprises, interregional enterprises in the form of joint ventures of the Uztransgaz Joint Stock Company were established to provide gas to all categories of consumers [9].

A major step forward in ensuring the energy security of our country, diversifying sources of guaranteed supply of "blue fuel", means that additional volumes of energy resources are required to compensate for seasonal imbalances in consumption, and to provide the population with reliable and uninterrupted gas and electricity. The outdated and non-transparent management system, which combines regulatory functions and commercial activities, has hindered the introduction of modern management at oil and gas enterprises, increasing their financial stability and profitability.

In particular, the volume of its extraction by enterprises in the country decreased by 29 percent, confirmed natural gas reserves in 2008-2018 decreased by 4 percent, and the average indicator of natural gas reserves replenishment over the past 2014-2019 was about 70 percent. In 2017-2018, due to a lack of financial resources and material and technical resources, the growth in natural gas production was only 42 percent compared to the forecast indicators [10].

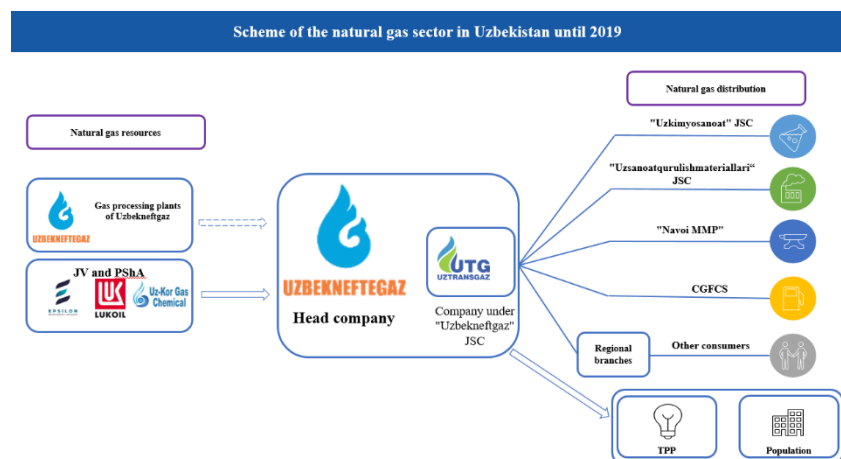


Figure 3. Diagram of the natural gas sector in Uzbekistan until 2019

It is clear that the problem of "dependency on practice" has arisen in the field of natural gas supply, and the consolidation of this field by one company at the same time has caused the above-mentioned shortcomings. In this case, the complex of formal and informal rules in one company does not correspond to the field of activity of the other company and shows that it has its own aspects. In particular:

The production of oil products and the production of commercial gas are technologically different, which leads to significant differences in attracting and implementing investment projects;

Oil products are mainly transported by railways and trucks, while commercial gas is delivered through main, medium and low-pressure gas pipelines;

There are significant differences in the net accounting of commercial gas and oil products, including commercial gas is measured in cubic meters and using gas metering equipment, and technical losses in it occur mainly in pipelines, while oil products are measured in tons and on industrial scales (there are other methods), and technical losses are different due to emissions, spills during transportation, and other forms;

A large number of oil products produced by JSC "Uzbekneftgaz" are sold directly on the stock exchange, and commodity gas is supplied by JSC "Uztransgaz" to consumers directly based on contracts based on available resources, where the terms of payment are specified in the contract.

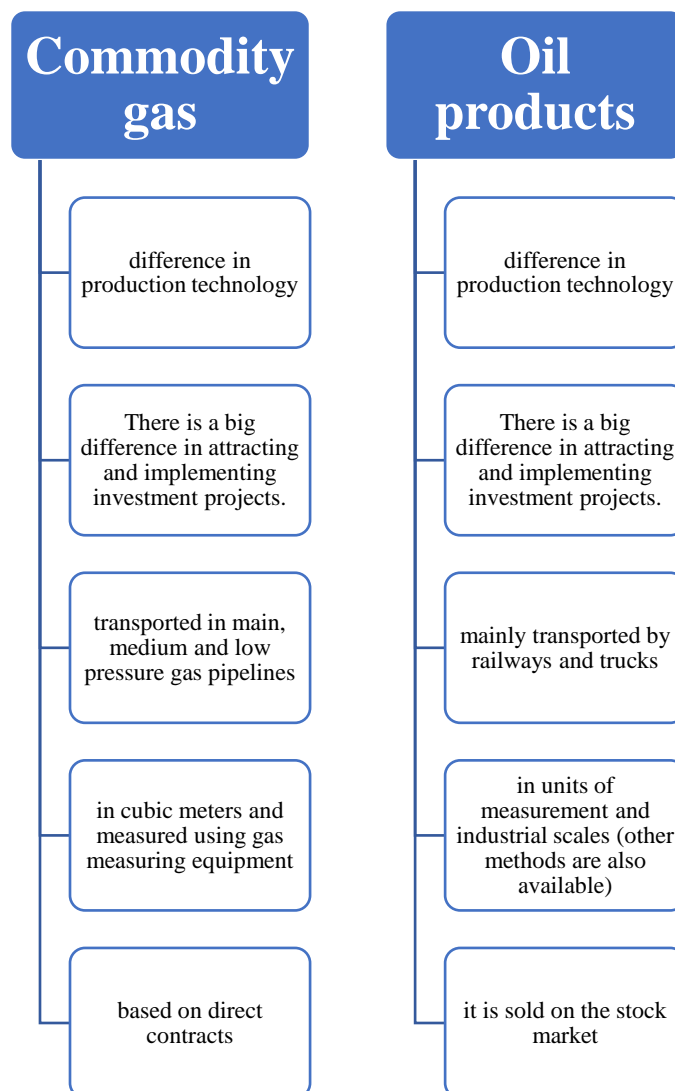


Figure 4. Implications for institutional differentiation of commodity gas and oil products according to their specific characteristics

It goes without saying that the production and sale of petroleum products is based on an institution that forms a separate set of formal and informal rules, and the natural gas supply sector is based on an institution that forms a separate set of formal and informal rules.

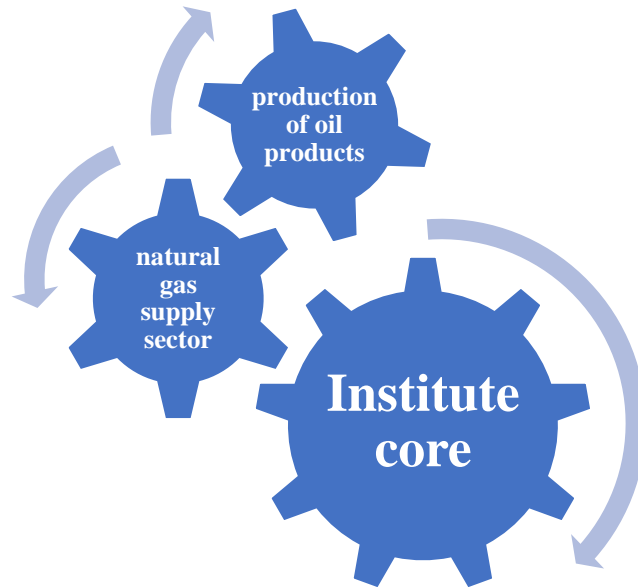


Figure 5. Institutional differences between the natural gas supply sector and the oil products production sector in Uzbekistan

In order to introduce and accelerate the development of an effective management system for the energy sector, increase its competitiveness and investment attractiveness, in accordance with the tasks set out in the Strategy of Actions on Five Priority Areas of Development of the Republic of Uzbekistan for 2017-2021 and the Concept of Administrative Reforms in the Republic of Uzbekistan, the Ministry of Energy was established and, according to the functional principle of the vertically integrated Uzbekneftegaz Joint Stock Company, it was divided into Uzbekneftegaz JSC, Uztransgaz JSC, and Hududgaztaminot JSC, which are directly engaged in the relevant types of activities [10].

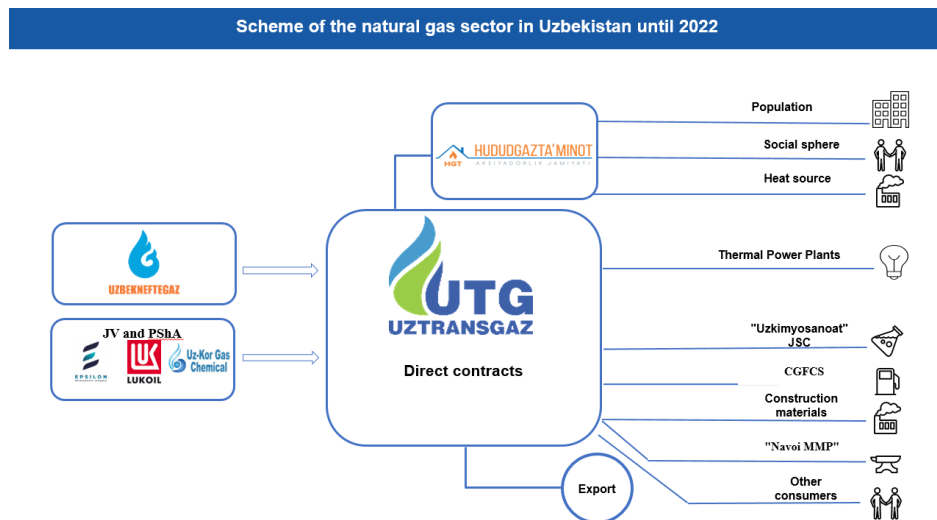


Figure 6. Scheme of the natural gas sector in Uzbekistan until 2022

After the above reforms yielded results, Uzbekistan would inevitably require additional energy resources for the development of its economy, including further development of its industry. A new, mutually reliable organization was needed to establish international relations and organize imported gas. In addition, there was a gap between the price of sales to the domestic market and the price of commercial gas offered in our country. The volume of natural gas production in our country had decreased, and competition in the field of commercial gas supply in this sector was negative. There were unfavorable legal and financial conditions for attracting the private sector to this sector.

This situation existed in the previous period until 2019, and based on the negative circumstances listed above, the problem of “path dependence” arose with its own characteristics at the next stage of development. There was a need to further develop competition in the field of commodity gas supply and create favorable legal and financial conditions for the development of private sector activities in these areas.

The issue of separating the function of the “single buyer” of natural gas from the function of operating trunk networks was raised. This required an institutional transformation of the natural gas sector. As a legal basis for implementing institutional reforms, the Decree of the President of the Republic of Uzbekistan No. PD-101 dated April 8, 2022 “On the next reforms to improve the business environment and create conditions for sustainable economic growth through the development of the private sector” can be cited as an example [11].

In order to ensure the implementation of this Decree, as well as in accordance with the State Program for the implementation of the “Year of Human Dignity and Active Mahalla” approved by the Decree of the President of the Republic of Uzbekistan No. PD-60 dated January 28, 2022, and the Resolution of the President of the Republic of Uzbekistan No. PP-280 dated June 15, 2022 “On additional measures to reform the natural gas market”, “Uztransgaz” JSC was transformed into a company engaged in gas transportation (Transmission system operator) and “UzGasTrade” JSC was established, which performs the function of centralized purchase and sale of natural gas [12].

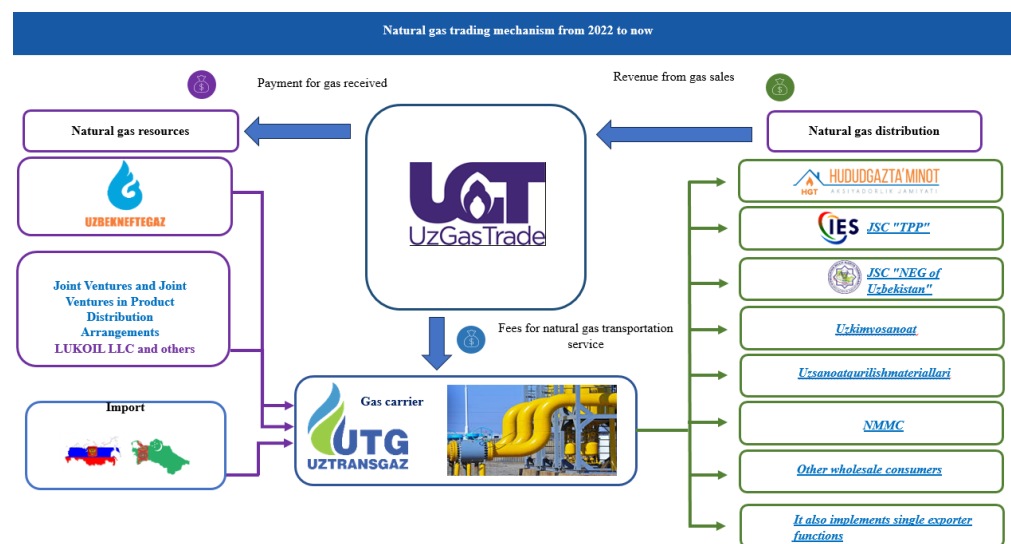


Figure 7. Scheme of the natural gas sector in Uzbekistan from 2022

As a result, gas imports from neighboring Turkmenistan and Russia began, which marked a new level of cooperation. At the same time, gas volumes imported from Turkmenistan are being directed to the domestic needs of Uzbekistan. These volumes are a step towards a new level of cooperation with the existing resource capabilities of Turkmenistan. This gas import is carried out on the basis of market principles.

As part of the measures aimed at ensuring the smooth operation of Turkmenistan's gas supply, especially in the autumn-winter season, natural gas imports have begun within the framework of the relevant agreement. Although these volumes do not fully cover the needs of our republic, they will partially satisfy the demand for gas. The volumes supplied by local production companies are of great importance, and based on available resources, natural gas is supplied to the population and enterprises of various sectors of the economy. In addition, Russian gas supplied to Uzbekistan via Kazakhstan plays an important role in ensuring our seasonal needs.

It should be noted that the contract for the purchase and sale of Russian gas between UzGasTrade JSC and Gazprom Export LLC was developed on fully commercial terms. Russian gas, which has begun to be imported in a "reverse" manner, is of strategic importance for Uzbekistan. It is also a major step forward in ensuring the energy security of our country, diversifying sources of guaranteed supply of "blue fuel", and means additional volumes of energy resources to compensate for seasonal imbalances in consumption, and to provide the population with reliable and uninterrupted supply of gas and electricity.

The President of Uzbekistan personally supported the leaders of Kazakhstan and Russia in implementing this project and will serve to further strengthen relations between the three countries [13]. In addition, in order to ensure the effectiveness of these reforms, subsidies are allocated from the state budget to cover losses arising from the difference in the purchase and sale prices of natural gas, and the provision of subsidy funds allocated for these purposes is gradually decreasing (Figure 8).

#### Share of expenses (subsidies) to cover losses incurred between the purchase and sale of natural gas in the budget of the Republic of Uzbekistan in 2022-2025 (in billion soums)

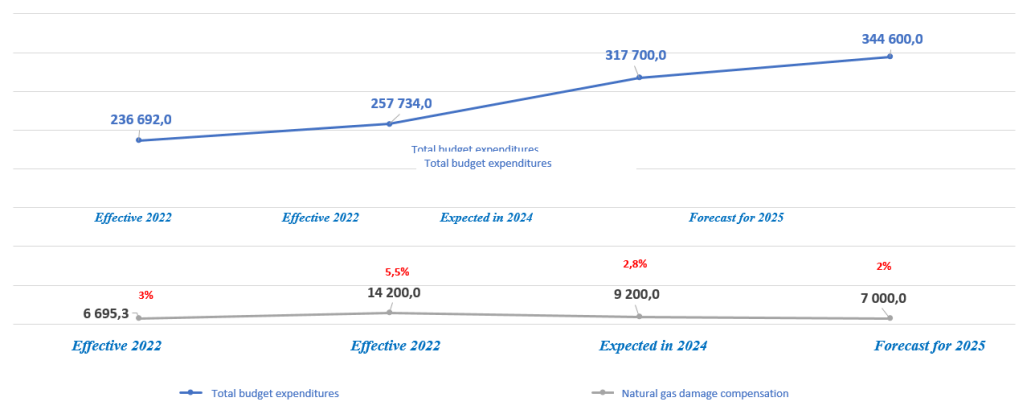


Figure 8. Share of expenses (subsidies) to cover losses incurred between the purchase and sale of natural gas in the budget of the Republic of Uzbekistan in 2022-2025 [14]

The decrease in the share of costs (subsidies) to cover the losses incurred between the purchase and sale of natural gas in the budget of the Republic of Uzbekistan indicates that the effectiveness of the reforms being implemented is increasing and that economic agents have learned to cooperate productively with each other due to the development of institutional relations in the sector.

In this case, we can see that the problem of " path dependence " will be resolved in the medium term (2-3 years) due to the development of institutions. The decrease in the share of costs (subsidies) to cover the losses incurred between the purchase and sale of natural gas in the budget of the Republic of Uzbekistan also had its effect on the increase in natural gas prices (Table 1).

Table 1. Prices for selling natural gas per cubic meter to the population and economic sectors [15]

Years	Population	CGFCS	Thermal power stations	Large consumers	Other wholesale customers
2020	380,0	1 000,0	660,0	1 000,0	660,0
2021	380,0	1 000,0	660,0	1 000,0	660,0
2022	380,0	1 150,0	1 000,0	1 133,0	1 100,0
2023	380,0	1 500,0	1 500,0	1 800,0	1 500,0
2024 *	1 075,0	1 800,0	1 500,0	1 800,0	1 500,0
<b>Forecast for 2025 *</b>	1 400,0	2 500,0	1 800,0	2 000,0	1 800,0

In his speech at the first session of the Senate of the Oliy Majlis after the parliamentary elections, the President of the Republic of Uzbekistan Shavkat Mirziyoyev noted that the “Uzbekistan-2030” strategy aims to increase the country’s GDP to \$160 billion. The President expressed confidence that if the Government and all leaders work together hard and continue to rapidly implement changes in our social, economic and political life without slowing down the pace of reforms, the economy can reach \$200 billion by 2030 [16].

Indeed, energy stability is required for the country’s development, especially in the field of natural gas supply, and it is important to implement consistent changes in these changes based on a predetermined strategy and achieve results. The Resolution of the President of the Republic of Uzbekistan No. PP-300 dated September 11, 2023 [17] “On measures for the qualitative and timely implementation of the “Uzbekistan-2030” Strategy in 2023” [17] requires the development of a concept for a phased transition to a competitive natural gas market, which includes the following main content (Figure 9):

1. phased introduction of market mechanisms in the production, transmission and supply of natural gas;
2. establishment of activities of private operators for guaranteed supply in order to meet the demand for natural gas in the domestic market.

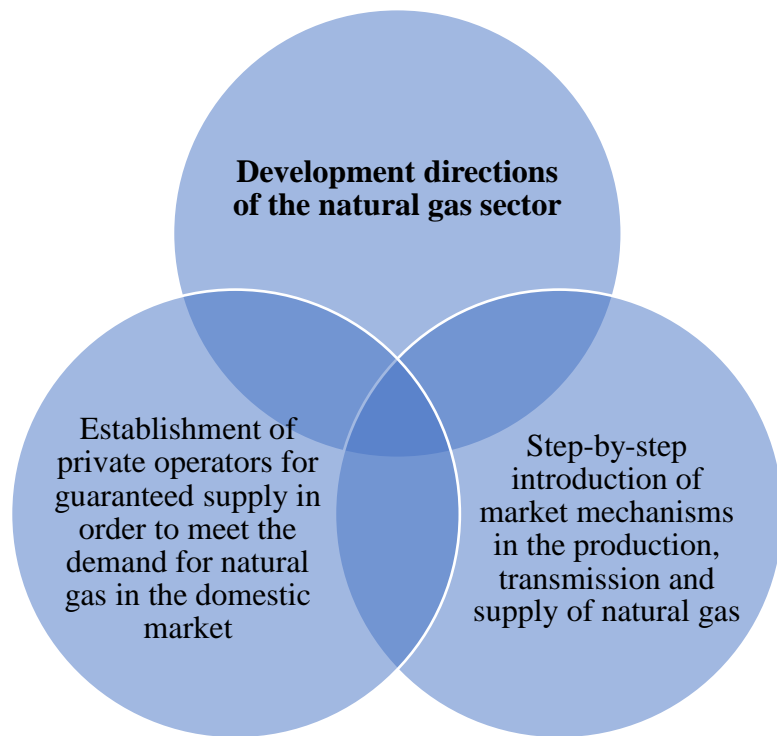


Figure 9. Development directions of the natural gas sector

#### 4. Conclusion

In conclusion, it is necessary to sift through the "collective learning" in the natural gas supply sector. The implementation of the sifted experience into practice is of great importance. Therefore, it is necessary to improve the "collective learning" that is being formed today, or rather, the culture of doing business in the sector and the set of relationships, values, customs, formal and informal rules. Based on the "collective learning" in the sector, it is necessary to determine any actions that will benefit society and form a process of "collective learning", including the gradual transfer of culture and values to the next generation. When organizing institutional transformation in the natural gas supply sector, special attention should be paid to the problem of "subordination to practice". In particular, the following rule can be stated as "After each reform has yielded its results, the problem of "subordination to practice" arises in the sector. Therefore, there is an opportunity to solve the problem of "path dependence" due to the development of long-term planning strategies and concepts.

##### Suggestions

On the basis of the above, an approach and proposals were developed, which ensure that the main attention is paid to reducing transaction costs and ensuring the effectiveness of reforms in the process of institutional transformation in the natural gas sector.

Firstly, the following are recommended as ways to prevent the problem of "path dependence" in the sector and the ineffective operation of economic agents over many years:

1. In order to optimize the activities of "Khududgaztaminot" JSC, first with the territorial branches of Tashkent city and Kashkadarya region, and later with other territorial branches, to conclude a direct contract with the single state operator performing the function of centralized purchase and sale of natural gas;
2. To transfer the function of wholesale purchase and sale of natural gas to all consumers, in particular the population, to a private operator without

increasing the tariffs established by the Resolution of the Cabinet of Ministers No. 204 dated April 16, 2024;

3. To designate "Hududgaztaminot" JSC as an operator of gas distribution networks specializing in the transportation of natural gas in gas distribution networks and the operation of relevant equipment in compliance with the regulatory requirements of the rules for safe operation.

Secondly, based on the analysis, the following goals should be included in the concept of a phased transition to a competitive natural gas market:

1. reliable and uninterrupted supply of natural gas to the economy and the population;
2. development and modernization of the natural gas transmission system;
3. formation of a healthy competitive environment in the sector based on best international practices;
4. increasing the investment attractiveness of the natural gas sector;
5. expansion of natural gas production and service sectors;
6. formation of new reserves to meet the growing demand for natural gas in order to improve the social sphere and the well-being of the population.

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