



Analysis of the Development of the Energy Sector in Uzbekistan and the Impact of Investment Factors on It

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Abstract: The energy sector is the most important sector for the economies of countries around the world. This sector also has a significant impact on the stability of the national economy. A large part of the national income of countries is formed in this sector. The investment factor is very important for this sector. In the Uzbekistan's economy, the energy sector is also a factor that has a positive impact on macroeconomic stability. Therefore, increasing the attractiveness of investment in this sector is the most pressing issue today. Therefore, this article analyzes the current state of development of the energy sector in Uzbekistan and the investment factor affecting it. The investment projects being implemented in the country today are considered. This study is aimed at the development of the energy sector in Uzbekistan for 2017-2020. Based on the analysis, scientific conclusions were drawn. Scientific proposals have been developed to develop the energy sector and increase its investment attractiveness.

Keywords: energy, energy sector, economic stability, renewable energy, investment, investment attractiveness, investment projects, national income, public-private partnership, natural gas, gas condensate, conventional oil, coal, fossil fuel

INTRODUCTION

Today, the global economic situation is volatile. The positive impact of traditional industries on the economies of countries is diminishing. As a result of the emergence of new industries and their entry into the economy, the value added of the country's national income from some old industries is declining. In this case, it is necessary to identify the main sectors of the country and use them to stabilize the country's economy. In this context, it is also important to ensure the sustainable development of the sector by increasing the investment attractiveness of such sectors.

In the context of Uzbekistan, one of such sectors is the energy sector. This sector plays an important role in the country's economy. A large part of the country's national income is formed in this sector.

Uzbekistan is one of the countries that fully meets its needs at the expense of its energy resources. A significant share of electricity generation capacity in the Central Asian Unified Energy System belongs to the republic.

Anguelov (2012) noted that the most attractive companies to invest in a globalized world are multinational companies (MNCs), which are the main economic force of the corporate sector today[1]. The energy sector has also been a stable and sustainable sector for a long time, and is the basis of economic development, especially in developing countries[2][3].

Uzbekistan consumed 1,798,254,680,000 BTU (1.80 quadrillion BTU) of energy in 2017. This represents 0.31% of global energy consumption. Uzbekistan produced 2,134,897,145,000 BTU (2.13 quadrillion BTU) of energy, covering 119% of its annual energy consumption needs[4].

Uzbekistan is one of the world's largest producers of natural gas, producing 60 billion cubic meters a year, of which 35-40 billion cubic meters are supplied by Uzbekneftegaz. In 2019, the production volume amounted to 60.4 billion cubic meters.

In response to the increase in hydrocarbon consumption, about \$ 9.8 billion in industrial investment is planned for 2019-30, including \$ 3.5 billion for geological exploration and \$ 6.3 billion to increase natural gas production[5].

The energy sector plays an important role in the Uzbekistan's economy. There are several major strategic enterprises in the country in this sector, which play an important role in the economy. A new ministry has also been set up in the country to regulate and develop the energy sector. Currently, the main topic in this sector is to increase the investment attractiveness of the sector. Therefore, it is important to conduct research in this area and propose scientific solutions.

Literature review

This sector plays an important role not only in the economy of Uzbekistan, but also in the world economy. Therefore, local and foreign scientists have conducted research on this topic on the example of different countries and for different periods. Many scientific discoveries have been made in this area based on scientific research.

The study "Investment Attractiveness of the Russian Energy Sector MNCs: Assessment and Challenges"[6] is one of the important researches in this field. In this study, scientists studied the energy sector for the Russian economy. Scientists say the main goal is to increase the investment attractiveness of the Russian energy sector. Scientists have also developed scientific conclusions based on financial analysis aimed at increasing the investment attractiveness of the industry. This research is related to our research. Because the branches of Russia's largest energy companies also operate in Uzbekistan. Therefore, the role of these companies in the development of this industry is high. These companies are Gazprom and Lukoil.

Jesse Richman, Nurullah Ayyilmaz scientists "Can the US and Europe contain Russian power in the European energy market? A game theoretical approach"[7]. In doing so, the scientists analyzed Russia's role in the Euro energy market and the attitudes of its competitors.

Scientists such as Lavrov S and Aleksanyan A have conducted research on "Case study: The Transnationalization of Russian Oil and Gas Companies"[8]. This article analyzes the international activities of Russian MNEs. The authors explore the place of the MNE in the modern world and the evolution of the concept of the MNS in international practice. They define internationally accepted criteria that classify a company as an MNE. They conduct an analysis of the international activities of major Russian companies in the oil and gas sector (Gazprom, Rosneft, Lukoil, Surgutneftegaz, Novatek)

and their classification as MNE. The article also assesses the impact of economic and political sanctions on the international activities of Russian MNEs in the oil and gas sector.

Data and methodology

The oil and gas industry covers all oil and gas operations, from oil and gas exploration, drilling, production, hydrocarbon refining, petroleum production, petrochemical and chemical production, and to the supply of petroleum products to consumers.

There are about 30 enterprises in the oil and gas industry, which include gasoline, diesel fuel, jet fuel, various types of oils, fuel oil, bitumen, various types of polyethylene, commercial natural and liquefied gas, petrochemical and chemical products, liquefied petroleum gas. manufactures gas cylinders and other products.

The investment policy of the oil and gas industry is primarily aimed at attracting foreign investment with high technology to diversify the industry and ensure deep processing of oil and gas resources.

Over the past 5 years, the Ustyurt Gas Chemical Complex, Kandym Gas Processing Complex and a number of other industrial facilities have been commissioned. The implementation of major strategic projects for deep processing of hydrocarbons continues.

The plant for the production of synthetic liquid fuels is planned to be launched in 2020. As a result of the launch of this project, 3.6 cubic meters of natural gas processing and 1.5 mln. tons of high quality synthetic fuels are produced. At the same time, a new Concept for the implementation of an investment project to expand the production capacity of the Shurtan gas chemical complex has been developed. With the implementation of the project, the current capacity of the plant will increase from 125.0 thousand tons to 500.0 thousand tons, ie 4 times. As a result, the petrochemical industry will have ample opportunities for further development. In addition, it is planned to implement an investment project "Modernization of Bukhara Oil Refinery", which will ensure the production of high quality oil products that meet Euro-5 European standards.

This article analyzes the current state of development of the energy sector in Uzbekistan by analyzing the statistics. The article also used scientific methods such as synthesis and scientific abstraction. The article focuses on the current state of the energy sector and ways to increase investment attractiveness.

Analysis and results

In the last two and a half years, 17 investment agreements with a total capacity of 7,231 MW have been signed in the electricity sector. Tenders have also been announced for the construction of thermal, solar and wind power plants with a total capacity of 2,100 MW. At the same time, tenders for the construction of solar and wind power plants with a total capacity of 600 MW are being announced. In particular:

The first project: in September 2019, an agreement was signed in Nurabad district of Samarkand region to purchase electricity from a solar photovoltaic plant with a capacity of 100 MW, built, owned and operated by the French company Total Eren. The station is scheduled to be commissioned in December 2021.

The second project: In November 2019, an agreement was signed in Karmana district of Navoi region to purchase electricity from a solar photovoltaic plant with a capacity of 100 MW, built, owned and operated by Masdar of the United Arab Emirates. The station was launched in August 2021.

The third project: In March 2020, an agreement was signed to purchase electricity from a thermal power plant with a capacity of 1,500 MW and an efficiency of 60%, built, owned and operated by ACWA Power, Saudi Arabia. This thermal power plant is being built in Shirin, Syrdarya region. The station will be commissioned in the fourth quarter of 2023.

The fourth project: in May 2020, the Turkish company AksaEnerji will purchase electricity from a thermal power plant with a capacity of 240 MW and an efficiency of more than 50%, which will be built, owned and operated in Qibray district of Tashkent region. The agreement was signed. The station will be launched in the fourth quarter of 2021.

The fifth project: In June 2020, an agreement was signed to purchase electricity from a 500 MW wind farm to be built, owned and operated by the UAE company Masdar. The station will be launched in Tomdi district of Navoi region. The station is scheduled to launch in the fourth quarter of 2024.

The sixth project: In September 2020, an agreement was signed to purchase electricity from a thermal power plant with a capacity of 240 MW, built, owned and operated by the Turkish company Cengiz Energy, with an efficiency of more than 50%. The station is being built in Kibray district of Tashkent region and is scheduled to be commissioned in the first quarter of 2022.

The seventh project: In January 2021, an agreement was signed to purchase electricity from wind farms with a total capacity of 1,000 MW, built, owned and operated by ACWA Power, Saudi Arabia. The station will be launched in December 2023 in Bukhara region (Peshku and Gijduvan).

The eighth project: In January 2021, an agreement was signed to purchase electricity from a 230 MW thermal power plant built, owned and operated by the Turkish company AksaEnerji. The station is being built in Kibray district of Tashkent region. The station will be launched in December 2021.

The ninth project: In January 2021, an agreement was signed to purchase electricity from a 270 MW thermal power plant built, owned and operated by the Turkish company AksaEnerji. The station is being built in Bukhara district of Bukhara region and is scheduled to be commissioned in December 2021.

The tenth project: In February 2021, an agreement was signed to purchase electricity from a 174 MW thermal power plant built, owned and operated by the Turkish company OdasEnerji. The station is being built in Yangiariq district of Khorezm region and is scheduled to be commissioned in December 2021.

The eleventh project: In April 2021, an agreement was signed to purchase electricity from a 200 MW solar photovoltaic plant in Nurata district of Navoi region, which will be built, owned and operated by the UAE company Phanes Group. The station is scheduled to be commissioned in July 2023.

The twelfth project: In April 2021, an agreement was signed to purchase electricity from a new thermal power plant with a capacity of 1,560 MW in Angor district of Surkhandarya region, built, owned and operated by the Dutch company Stone City Energy. The station is scheduled to launch in December 2024.

The thirteenth project: 2 solar photovoltaic power plants with a capacity of 220 MW each, built, owned and operated by the UAE company Masdar in July 2021 in Kattakurgan district of Samarkand region and Gallaorol district of Jizzakh region an agreement on the purchase of electricity was signed. These stations are scheduled to be commissioned in May 2023.

The fourteenth project: In August 2021, an agreement was signed to purchase electricity from a solar photovoltaic plant with a capacity of 457 MW, built, owned and operated by the UAE company Masdar in Sherabad district of Surkhandarya region. The station is scheduled to be commissioned in July 2023.

The fifteenth project: In June 2021, an agreement was signed to purchase electricity from a thermal power plant with a total capacity of 220 MW in Yangiyer, Syrdarya region, which will be built, owned and operated by the Turkish company Cengiz Energy. The station is scheduled to launch in September 2022. The total capacity is 7,231 MW.

Natural gas production increased from 56,419.1 million cubic meters in 2017 to 60,405.8 million cubic meters in 2019 (table 1). When analyzing the production of gas condensate, it is possible to observe the

growth rate. That is, the figure increased from 1,951.0 kilotons at the beginning of the period under analysis in 2017 to 2,098.3 kilotons by the end of the period.

Table 1 Uzbekistan energy production, 2017-2019

Name	2017	2018	2019
Natural gas (mcm)	56 419.1	59 842.2	60 405.8
Gas condensate (kt)	1 951.0	2142.9	2 098.3
Conventional oil (kt)	813.4	746.4	698.6
Coal (kt)	4 038.6	4 174.4	4 049.5

Notes: mcm = million cubic metres. kt = kilotonne (1 000 tonnes). Source: <https://www.iea.org/reports/uzbekistan-energy-profile>

Conventional oil production, on the other hand, tended to decline during the period under review. That is, during this period, conventional oil production fell from 813.4 kilotons to 698.6 kilotons.

Coal production increased from 4,038.6 kilotons in 2017 to 4,049.5 kilotons at the end of the period. In other words, there are positive indicators of energy production.

The impact of the investment factor on energy production in Uzbekistan is high. Therefore, the government of Uzbekistan is implementing reforms aimed at increasing investment attractiveness in this area. As a result, in recent years the number and value of investment projects in this area has increased dramatically. The government has set up a special ministry to develop the sector. The main activity of this ministry is to develop the energy sector and increase investment attractiveness.

Conclusion and recommendations

The energy sector is one of the most important sectors of the Uzbek economy. Several strategic enterprises of the country operate in this sector. In addition, a large part of the population is employed in this sector. A large part of the country's national income is generated in this sector. In addition, the main consumer goods of the population are produced in this sector. As this is the main network, the government has set up a special ministry to develop and regulate the network. The activity of the Ministry is to develop the energy sector and work with investment projects in it.

The role of energy investments in Uzbekistan is significant. According to the analysis, in the last two and a half years, 17 major investment projects have been implemented in this area, and some are in the process of implementation. As a result of these projects, the total energy capacity of the network is expected to reach 7,231 MW.

If we analyze the energy sector in Uzbekistan, it is mainly non-renewable (fossil fuels) 96%. The remaining 4% is renewable and nuclear energy. In conclusion, the formation and production of renewable energy sources in Uzbekistan is important. Therefore, it is proposed to attract investment in renewable energy production projects, especially foreign investment. This will increase the volume of renewable energy in the Uzbek energy market. This will have a positive impact on the economy, both in terms of energy consumption and the basis for the future.

We propose to further strengthen support for research aimed at developing the industry and increasing investment attractiveness. Because the increase in research activities in the field will improve the process of identifying existing problems in the field and the implementation of scientific innovations in practice.

The knowledge and skills of specialists also play an important role in the development of the industry. In addition, the number of highly qualified personnel will be an important condition for the development of the industry. Therefore, we propose to further improve the system of energy training and the introduction of international experience and international standards in the field.

The biggest factor influencing the development of the energy sector in Uzbekistan is investment. Therefore, we propose to increase the investment attractiveness in the energy sector. The first step is to build the infrastructure needed for the investment. Infrastructure will be the most important factor for investment projects.

In conclusion, the energy sector in Uzbekistan is currently developing and opening up a wide range of investment opportunities. As a result of the reforms implemented by the Government in recent years, there have been dramatic developments in this area. Further development can be achieved on the basis of further increasing the number of highly qualified specialists in the industry and increasing the investment attractiveness of the industry. Positive results are expected in the development of the energy sector in Uzbekistan.

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