KAZAKHSTAN'S "ENERGY PLURALISM": LONGSTANDING AND NEW RISKS

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ABSTRACT

his article examines the current trends in the development of the energy sector in the Republic of Kazakhstan. It is a key factor in the country's competitiveness and a driver of the comprehensive modern-

ization of Kazakhstani society. Considerable attention is heeded to the development risks in various sectors of the fuel and energy complex that affect Kazakhstan's multi-vector energy policy. The urgent task of the country's

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sustainable development and the creation of a more balanced energy sector leads to the conclusion that a synergetic approach is prioritized in Kazakhstan's policy. This approach entails the development of "energy pluralism" with the prospect of further diversification of the country's energy balance and an emphasis on innovative development.

KEYWORDS: Kazakhstan, energy pluralism, energy diplomacy, hydrocarbon policy.

Introduction

Target Setting. Relevance

Kazakhstan's fuel and energy complex allowed it to become deeply integrated with the globalized economy; it sells its products and receives income, finances itself and purchases goods, services and technologies. Today, the republic's energy policy is assigned a key role in the successful modernization of all spheres of life in Kazakhstani society.

Kazakhstan's energy strategy has a "pluralistic" design due to the variety of types of extracted energy resources and transportation routes, and diversification of investors and consumers.

It can be argued that the "energy pluralism" characteristic of Kazakhstan affects the country's overall competitiveness under modern conditions. The fuel and energy sector accounts for 17% of Kazakhstan's GDP and provides 44% of the republic's budget. At the same time, it is the energy sector that is the source of main risks that can significantly affect the Kazakhstan economy, including the formation of a balanced structure of the country's economic activity.

Today, the energy policy of the Republic of Kazakhstan requires a major transformation. Over the current decade, the global economy has not been able to overcome the crisis, which in the last year was aggravated by the pandemic and led to a significant drop in both demand and world prices for energy resources. For instance, the pandemic has reduced the demand for petroleum products in the aviation industry. This has created new challenges for the country's sustainable development. In order to understand the prospects for the development of the energy sector of the Republic of Kazakhstan, the authors attempt to identify the main development trends and risks of the energy sector of the Republic of Kazakhstan.

Variety of Types of Extracted Energy Raw Materials

First, it is important to determine the state, development trends and problems of the main sectors of the Kazakh fuel and energy complex (oil and gas, nuclear, coal and electric power sectors) in the context of the leading trends in the global energy development.

Kazakhstan is the ninth largest country in the world, with 2.7 million sq. km, and is one of the important sources of energy for the global economy, since it possesses 3.6% of the world's primary energy reserves. In 2019, Kazakhstan ranked 12th in the world in terms of proven oil and gas condensate reserves, with a production volume of 90.5 million tons of oil, exporting 72.4%. In 2019, Kazakhstan ranked 22nd in the world in terms of proven natural gas reserves; gas production in the

same year reached 56.4 billion cu m. In addition, Kazakhstan is one of the world leaders in uranium mining (2nd place), and is among the top ten countries in the world in coal mining (8th place). Today, the total volume of recoverable fuel reserves (oil, gas, coal and uranium) in Kazakhstan is about 32 billion tons of oil equivalent (toe).

As mentioned above, 44% of the budget revenues in Kazakhstan depend on the cost of oil, since, despite all attempts to modernize, the dependence of the Kazakhstani economy on the fuel and energy complex has not decreased.

The main increase in oil production in 2019 is associated "with stable growth in the Kashagan field (14.1 million tons), as well as in Tengiz (29.8 million tons) and Karachaganak (11.2 million tons). These three projects account for about 60% of all production in Kazakhstan."¹ The Tengiz and Karachaganak fields, discovered in 1979, and Kashagan, discovered in 2000, are among the largest in the world. Tengiz and Karachaganak are located on land, which facilitates the logistical and oil purification issues, while the Kashagan field is located in the offshore of the Kazakhstan sector of the Caspian Sea. This is the largest (Kashagan's geological reserves are estimated at 4.8 billion tons of oil and over 1 trillion cu m of natural gas) and a very complex offshore field that requires the use of expensive technologies and infrastructure. The share of the national company KazMunayGas in the development of these fields is 29% in Tengiz, 16% in Kashagan, and 10% in Karachaganak.

The volatility of oil prices has become the most important problem for the national operator in recent years. In addition, the pandemic crisis is taking its toll on the oil sector. In particular, global oil demand is projected to fall by 7-9%.

It should be noted that in addition to oil, the above projects also provide the bulk of gas production in the Republic: Karachaganak—49%, Tengiz—31% and Kashagan—14%.²

Gas exports play a less significant role than oil exports, accounting for only 34% of production. However, "blue fuel" is in demand on the domestic market.

Figure 1



Gas Transportation Infrastructure of the Republic of Kazakhstan

¹ R. Zhanbulatova, M. Zhiyenbayev, M. Dyusembekova, R. Nurtazina, "The Energy Vector of Kazakhstan-Russia Relations in the Context of Global Changes on the International Energy Market," *Central Asia and the Caucasus. English Edition*, Volume 21, Issue 2, 2020, pp. 121-130.

² See: "Kazakhstan zanimaet 22-e mesto v mire i 3-e mesto sredi stran SNG posle Rossii i Turkmenistana," Central Communications Service under the President of the Republic of Kazakhstan, available at [http://www.ortcom.kz/kazahstan-zanimaet-22-mesto-v-mire-3-mesto-sredi-stran-sng-posle-rossii-turkmenistana/], 24 November, 2020.

Today, the most pressing issues for the sustainable development of the gas industry in Kazakhstan include:

- dependence of gas production on oil field development, since it is based on the use of associated petroleum gas;
- weak level of development of the country's gas transportation infrastructure (for domestic use, for gas export and transit).

Due to the transit nature of the gas transmission infrastructure, part of the territory of the Republic of Kazakhstan remains non-gasified. The southern regions of Kazakhstan depend on gas supplies from Uzbekistan, and the northern regions on supplies from Russia.

Another resource sector of Kazakhstan, nuclear energy, has good development prospects. Kazakhstan is the leader in the global natural uranium market, all raw materials are exported (in 2019—22.8 tons, constituting over 40% of world uranium supplies), since the republic does not have its own nuclear power plants. *The national operator AO NAC Kazatomprom* is one of the leading uranium mining companies in the world and controls 55% of uranium production in Kazakhstan.³

Kazakhstan plans to ensure the industrial and innovative development of the country's economy in the future by developing and implementing science-intensive nuclear energy technologies, and to become a country with a complete nuclear fuel cycle. Therefore, the Development Strategy of AO NAC Kazatomprom for 2015-2025 designated diversification in all parts of the nuclear fuel cycle as the priority goal.⁴ To achieve this goal, it is planned to produce fuel for nuclear power plants in the form of final products. In particular, since 2016, AO NAC Kazatomprom, together with the Chinese corporation CGNPC, has been building a plant for the production of fuel assemblies (FA) for use at nuclear power plants in the PRC.⁵

The risks of developing the nuclear industry are primarily associated with transport and logistics dependence on Russia. Uranium is transported through Russian seaports and railways, which makes Kazakhstani producers dependent on the affordability of Russian carriers' services.

Coal energy retains the leading position in Kazakhstan. Although the current global situation in the global energy markets is not in favor of coal, the share of coal energy in the country's energy balance has not decreased. Most (more than 60%) of the extracted coal (115.4 million tons) is consumed in the domestic market.

The following risks for the development of the coal industry are still relevant:

- logistic problems (geographic remoteness of Kazakhstan from the largest export markets and high transport costs associated with this problem);
- lack of competitiveness of Kazakhstani coal due to its physical characteristics (high ash content, low calorific value).

Over 50% of attrition and annual elimination of coal mining capacities should also be taken into account.⁶ In addition, the current decline in coal supplies from Kazakhstan by the main importer, Russia, exacerbates the situation in this sector.

³ See: "On Approval of the Concept for the Development of the Fuel and Energy Complex of the Republic of Kazakhstan until 2030," *Information and Legal System of Regulatory Legal Acts of the Republic of Kazakhstan*, available in Russian at [http://adilet.zan.kz/rus/docs/P1400000724], 24 November, 2020.

⁴ See: "Priniata novaia strategia razvitiia AO NAK Kazatomprom na 2015-2025 gody," Kazatomprom National Company, available at [https://www.kazatomprom.kz/ru/media/view/prinyata-novaya-strategiya-razvitiya-ao-nak-kazatompromna-2015-2025-gody], 24 November, 2020.

⁵ See: "Production of the Nuclear Fuel Cycle," Kazatomprom National Company, available in Russian at [https://www.kazatomprom.kz/ru/page/produktsiya_yatts], 24 November, 2020.

⁶ See: "Ugol' protiv solntsa: kakoe budushchee u energetiki Kazakhstana?" inbusiness.kz, available at [https://inbusiness.kz/ru/last/ugol-protiv-solnca-kakoe-budushee-u-energetiki-kazahstana?utm_source=yxnews&utm_medium=deskto], 24 November, 2020.

As for the development of the electric power industry in the Republic of Kazakhstan, 128 power plants produced a total of 106 billion kWh of electric energy in 2019. Renewable energy sources (RES) are considered one of the promising areas in the energy industry, and Kazakhstan is a leader in the CIS region in terms of its development. It is worth emphasizing that Kazakhstan was the first in the CIS to adopt the Environmental Code in 2007, then in 2009 the Law on Supporting the Use of RES, and the Concept of Transition to a Green Economy in 2013, and subsequently launched high-tech innovative renewable energy projects. These projects include the production of photovoltaic modules and wind rotor turbines.

The number of commissioned facilities began to grow. Currently, Kazakhstan has 90 renewable energy facilities with an installed capacity of over 1 GW, including 19 wind, 31 solar, 37 hydroelectric power plants and 3 bioelectric power plants. The renewable energy market has grown exponentially, with 2.4 billion kWh of green energy generated in 2019, 77.8% more than in 2018.

According to preliminary data, the share of renewable energy in total electricity generation is estimated at 2.3%. In general, the economic significance of the development of renewable energy sources for Kazakhstan lies in the fact that the introduction of "green" technologies will lead to an increase in the energy efficiency of the national economy by 40-60%.⁷

In our view, mastering value chains of low-carbon and zero-carbon technologies is a challenge to competitiveness, economic development, energy sovereignty, and security. However, one of the current main problems in the electric power industry of Kazakhstan is associated, first and foremost, with the high wear and tear of equipment.

Summarizing the analysis of the state of the fuel and energy complex, it is essential to note that Kazakhstan has a diversified energy production structure. It is necessary to clarify that 72.4% of produced oil, 34% of gas, 31% of coal and 100% of nuclear energy products are exported. However, the challenge of creating a more balanced structure in the energy sector remains relevant.

Diversification of Hydrocarbon Sales Markets

In particular, oil is exported by Kazakhstan to 35 countries in Europe and Asia. The main consumers of Kazakhstani oil are the European countries (Italy, Netherlands, France, Switzerland and others), as well as China, Russia, and Uzbekistan. More than half of the exported oil and petroleum products are sold to the European countries.

Table 1

Countries	Total Export, <i>\$bn</i>	Amount of Exported Oil, <i>tons</i>	Share in Oil Export Structure, %
Italy	8.2	17,074,562	24
Netherlands	3.5	7,410,979	11
France	3.4	7,024,677	10
Switzerland	2.3	5,276,194	7

Main Directions of Kazakhstan Oil Export (2019)

⁷ See: "Vyrabotka elektricheskoy energii ob'ektami VIE vyrosla na 65% (see: "Neft, benzin i VIE: Itogi 2019 goda," FinReview, available at [http://finreview.info/ru/review/neft-benzin-i-vije-itogi-2019-goda-2/], 24 November, 2020).

Table 1 (continued)

Countries	Total Export, <i>\$bn</i>	Amount of Exported Oil, <i>tons</i>	Share in Oil Export Structure, %
Uzbekistan	0.6	200,803	6
Russia	0.56	133,291	5
China	1.1	2,460,428	4

The main consumer of Kazakhstani raw uranium is China. It is also being exported to the European Union, among which France is the largest consumer, as well as to India, Japan, the U.S., and Russia. China and Russia are major consumers of Kazakhstani gas. Judging by the above list of consumers of Kazakhstani energy resources, China seems to have a significant role in the implementation of the multi-vector energy strategy outlined by Kazakhstan. For Kazakhstan, which has a common 1,783-km border with China, the world's largest energy market, this is a rather favorable opportunity. However, the global situation has led to a reduction in China's purchases of Kazakhstani gas since March 2020.

Diversification of Foreign Investment Sources

The energy industry has been the subject of the republic's investment activities since it has declared independence. Kazakhstan is gradually transforming according to the rules of the international market, and FDI is attracted thanks to the favorable conditions created by the country's authorities. Investors are offered production sharing agreements, joint ventures, tax breaks and other privileges. According to the data for the last decade, about \$250 billion in FDI has been attracted by Kazakhstan.⁸ By the end of 2019, the country totaled \$24.1 billion in FDI.⁹

The favorable investment climate in the country has attracted investments in the oil and gas sector, i.e., from the U.S., China, Japan, Russia, France, Great Britain and other leaders of the world economy, which became the driver of economic growth.

Kazakhstan took the 25th place in the 2019 annual World Bank Doing Business rating, which assesses the investment attractiveness of the economies of 190 countries.¹⁰

The innovations adopted in 2017 in the Code on Subsoil and Subsoil Use of the Republic of Kazakhstan significantly improve the investment attractiveness of the energy industry. This is due to the alignment of national legislation with the global standards of the OECD countries with regard to mechanisms that allow to stimulate private investment in geological subsoil exploration, provide guarantees of stability of subsoil use conditions, and eliminate a number of administrative barriers.¹¹

⁸ See: "\$250 mlrd inostrannykh investitsiy privlek Kazakhstan za poslednie 10 let," *Forbes Kazakhstan*, available at [https://forbes.kz/news/2019/07/30/newsid 204748], 24 November, 2020.

⁹ Kazakh Invest National Company website, available in Russian at [https://invest.gov.kz/ru/], 24 November, 2020.

¹⁰ See: "Ease of Doing Business Rankings," The World Bank, available at [https://www.doingbusiness.org/en/rank-ings], 24 November, 2020.

¹¹ See: *Subsoil and Subsoil Use Code of the Republic of Kazakhstan*, Art 179.3.1,2 available in Russian at [https://online. zakon.kz/document/?doc_id=31764592&mode=p&page=13], 24 November, 2020.

For investors like Russia and China, Kazakhstan's geographical location has become one of the most important decisive factors in FDI, since it allows them to significantly reduce production and transportation costs. In addition, the Russian Federation and the PRC do not intend to exclude Kazakhstan from their investment portfolio in the interests of strengthening partnerships with Kazakhstan. For Russia, this is important against the background of destabilization in other EAEU partner countries in connection with the events in Belarus, Armenia, and Kyrgyzstan. For China, Kazakhstan is a key country in the Belt and Road Initiative, as it is one of the shortest land corridors to Europe.

Nevertheless, pessimistic economic forecasts for the post-COVID-19 period lead to a reduction in investments in oil production. A decrease in Chinese investments is anticipated due to a slowdown in economic growth in the PRC itself. In these conditions, China is minimizing foreign investments, as it prioritizes the financing of national production. The demand for resources is noticeably decreasing amid the economic downturn in the PRC. In particular, as mentioned above, China is gradually reducing purchases of Kazakhstani gas.

The investment potential of the EU is important for Kazakhstan. The interests of the Republic of Kazakhstan overlap with the interests of the EU countries, whose main interests in cooperation with Kazakhstan are focused on ensuring access to energy resources and participating in the development of their reliable transportation to the EU market, which is an option for diversifying sources and routes of energy resources for the EU. At the same time, Kazakhstan is not merely significant as a source of raw materials; it is also important for the EU as a transit state for the transportation of gas from Uzbekistan and Turkmenistan. Kazakhstan, in turn, does not intend to limit itself exclusively to the export of hydrocarbons to Europe. The Republic of Kazakhstan aims to cooperate with the EU countries in the spheres of energy efficiency and energy saving, peaceful use of nuclear energy, and clean energy technologies.

Kazakhstan's position in the EU energy space is being consolidated with the support of a welldeveloped legal and institutional framework for bilateral cooperation in this area. Kazakhstan has been a party to the Energy Charter Treaty since 1994, and it also actively participates in EU infrastructure programs, such as TRACECA and INOGATE.

The new Agreement on Enhanced Partnership and Cooperation between the EU and Kazakhstan, concluded in 2015, recognizes the need for enhanced, sustainable and effective cooperation in the energy field to ensure energy security based on the principles of mutual interest, reciprocity, transparency and predictability.

The factors that hinder the effective cooperation of the EU countries with Kazakhstan include geopolitical risks, underdeveloped infrastructure, limited market, inefficiency of state institutions, and weak competitiveness of the national economy.

Competition for foreign investment in the energy sector has increased, motivating Kazakhstan to create a more attractive environment for potential investors.

Kazakhstan is also interested in creating a variety of energy supply routes to sales markets.

Traditionally, the overwhelming majority of Kazakhstani oil and gas is transported through Russia. The CPC pipeline remains the main export route,¹² which carries oil from Kazakhstan to the <u>Black Sea terminal Yuzhnaya Ozereevka (Novorossiysk, Russian Federation)</u>. The Atyrau-Samara oil pipeline provides access to markets across the Russian Federation through the oil pipeline system of PAO Transneft to the Baltic terminal of Ust-Luga and to the Black Sea port of Novorossiysk.¹³ Kazakhstan cannot directly supply its resources to Europe—even its access to the Caspian Sea does not provide an opportunity to enter the world market without using transit routes.

¹² See: R. Zhanbulatova, M. Zhiyenbayev, M. Dyusembekova, R. Nurtazina, op. cit.

¹³ See: "Natsionalny energeticheskiy doklad Kazenergy 2019," Kazenergy, available at [https://www.kazenergy.com/ ru/analyst/190/], 24 November, 2020.

The foreign policy of the Republic of Kazakhstan is aimed at ensuring the establishment of stable and safe routes for the energy export in various geographic directions. This issue has become an important area of economic diplomacy of the Republic of Kazakhstan following the realization that the main hydrocarbon raw material export route has a single destination. The inland location of Kazakhstan in the very center of Eurasia creates certain difficulties for the full realization of its potential, however, at the same time, it determines its special role in the transit of energy resources throughout the Eurasian continent.

Thanks to the multi-vector strategy of export deliveries, Kazakhstan has increased its maneuvering capacity by increasing the throughput of the Chinese exports and by linking fields in the country's western regions with the Atasu-Alashankou oil pipeline. At the moment, Kazakhstan is capable of exporting up to 20 million tons of oil per year to China, however, in 2019 only 50% of the throughput capacity was used.

Marine oil transportation is carried out by vessels of the subsidiary of AO NC KazMunayGas-TOO NMSK Kazmortransflot. The main operating sea routes are: Aktau-Baku (Caspian Sea), Aktau-Makhachkala (Caspian Sea), routes from the Black Sea ports. In 2008, as a result of reorganization AO KazTransOil became the owner of 100% of shares of Batumi Terminals Limited (Cyprus). The latter is the company that directly owns and manages production assets in Georgia—the Batumi oil terminal and the Batumi seaport. This allows to transport oil via the Aktau-Baku-Batumi corridor.

Geopolitics as a Risk Factor in the Energy Sphere

The energy component is becoming a strategic resource in the global geopolitical scenario, for instance, the export of energy resources has become not only a driver of Kazakhstan's economic development, but also a factor that determines its status in world politics. In particular, the Concept for the Development of the Fuel and Energy Complex of the Republic of Kazakhstan emphasizes the need to strengthen geopolitical influence in the region.

Geopolitical and geo-economic issues related to energy policy are becoming increasingly more complex. In addition to the risks associated with the resource supply security, which remain acute, new risks associated with the competition of global and regional actors are now emerging.

In this context, there are risks associated with Kazakhstan's closest partner—Russia. They are rooted in the geopolitical tensions between the United States and Russia, which are competing on a number of issues: access to energy technologies (ongoing sanctions after the Ukrainian crisis), competition in the European gas market (Nord Stream 2, export of American LNG), the development of oil pipelines and gas pipelines bypassing Russia in the Caspian region. The latter factor is especially important for Kazakhstan, since a significant part of the republic's hydrocarbon resources are located in the Caspian oil and gas basin, which plays an important role in ensuring the supply of energy to Europe. In addition, the transit routes for these resources go through Russia, which plays a dominant role and has been in confrontation with Europe since the Ukrainian crisis.

In addition, most EU countries support green track initiatives.¹⁴ In the longer term, the green reversal of the EU countries, as well as the United States and such large market players as China, Japan and South Korea (which also announced decarbonization by 2060) will inevitably lead to a slowdown in the growth of global oil demand, as well as to a revision of energy strategies. In particular, in one of his statements, Joseph Biden promises to invest \$2 trillion in green energy over the next four years, subsidize the industry, increase investment in low-carbon energy technologies, and plans to tighten

¹⁴ See: "Ugol' protiv solntsa: kakoe budushchee u energetiki Kazakhstana?"

taxation and environmental regulation in the oil and gas industry (abolish federal subsidies, restrict the issuance of new licenses, cancel the construction of new pipelines, introduce a "carbon tax").

The EU's Green Deal was introduced in December 2019 by the European Commission, led by Ursula von der Leyen, who plans to tackle the transformation of the energy system. This course consists of a series of initiatives designed to ensure the implementation of EU sectoral strategies in line with the principles of sustainable development and to achieve EU climate neutrality by 2050.

Today, the entire global energy sector is transforming on the basis of three rising trends—decarbonization, digitalization, and decentralization. According to the WEC's "energy trilemma" index, which evaluates countries in terms of achieving the optimal balance between the three components of sustainable energy: energy security, energy equality and environmental sustainability, Kazakhstan ranked 42nd out of 128 countries in 2020.

According to the WEC experts, Kazakhstan demonstrates improved energy security, maintains stable energy equality indicators, however, environmental sustainability has slightly decreased at present. In addition, there is a decline in the country's innovative potential.¹⁵

Conclusion

Thus, the relevance of the problems of the Kazakhstani fuel and energy complex is increasing due to the uneven distribution of the country's fuel and energy balance across regions, deterioration of the fixed assets of the fuel and energy complex, lagging logistics potential, weak infrastructure of the fuel and energy complex, lack of capacity, high energy intensity of the economy, lack of financial resources, and environmental problems.

These risk factors, both the above-mentioned internal and external (in particular, the transit of the country's energy resources through neighboring and third countries, the price of energy resources in foreign markets, geopolitical risks) affect the priorities of the energy policy implemented by the Republic of Kazakhstan. This policy is aimed at ensuring the balanced and sustainable development of energy resource generation, transportation, and processing. These priorities correlate with topical issues of hydrocarbon transportation route diversification and the introduction of new technologies.

The main directions and priorities of Kazakhstan's energy policy are set out in a number of documents.¹⁶ The prospects for the energy sector of the Republic of Kazakhstan are associated with the development of technologies and infrastructure for processing energy resources, manufacturing products with higher added value, reducing their cost and increasing energy efficiency.

The priorities of Kazakhstan's policy are based on the analysis of the national situation and geopolitical conditions, but, above all, the resource potential. At the same time, Kazakhstan vests an interest in combining several factors of economic growth: availability of resources, diversification of the country's energy balance, innovative development. The energy policy of Kazakhstan, aimed at the interaction of these factors, should contribute to the country's sustainable economic development, regardless of the global energy prices.

¹⁵ See: "WEC Trilemma," World Energy Council, available at [https://trilemma.worldenergy.org/#!/country-profile? country=United%20Kingdom&year=2020], 24 November, 2020.

¹⁶ See: "On Approval of the Concept for the Development of the Fuel and Energy Complex of the Republic of Kazakhstan until 2030"; "On Approval of the Strategic Development Plan of the Republic of Kazakhstan Until 2025 and Invalidation of Some Decrees of the President of the Republic of Kazakhstan," *Information and Legal System of Regulatory Legal Acts of the Republic of Kazakhstan*, available in Russian at [http://adilet.zan.kz/rus/docs/U1800000636], 24 November, 2020.