An Overview on Russia Oil and Gas Market

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The article makes a detailed examination of the Russian oil and gas market. It outlines the legislative framework regulating the sector and identifies the regulatory authorities overseeing market operations. It introduces in Russia's oil and gas transport and distribution system and analyzes the current market conditions. A SWOT analysis is included to illustrate the strengths, weaknesses, opportunities, and threats confronting the Russian oil and gas industry.

The article also discusses the strategic significance of Russia's geographic location, the necessity for infrastructure upgrades, and the challenges associated with the global shift towards renewable energy. The analysis of current market dynamics is supported by production statistics and an evaluation of the industry's future prospects, such as the potential for integrating renewable energy sources and advancing LNG technology.

Keywords: Russia oil and gas market, energy price evolution, Russia energy mix energy mix

INTRODUCTION

Russia is among the world's leading countries in the system of world circulation of energy resources. Russia actively trades these resources and participates in international cooperation in this field.

Russia's position is especially important on the world hydrocarbon market. The beginnings of the Russian energy industry can be found in Tsarist period when it was under the control of different ministries like finance, trade and industry or even internal affairs.

The discovery of oil in the Baku region during the late 1800s initiated Russia's emergence as a major player in the global energy sector. By the early 20th century, Russia had already established itself as one of the world's top oil producers, a status further reinforced during the Soviet era with the exploration and development of vast oil and gas reserves in Siberia.

Following the dissolution of the Soviet Union, Russia's oil and gas industry experienced significant changes. Privatizing numerous state-owned enterprises led to the rise of influential energy giants such as Gazprom and Rosneft. These companies have played an essential role in Russia's energy production and export policies. The country's enormous reserves of natural gas and oil, especially in Siberia and the Arctic regions, have solidified its position as a leading global energy powerhouse

Today, Russia stands as one of the largest producers and exporters of oil and natural gas worldwide. It supplies a substantial portion of Europe's energy requirements while also expanding its market presence in Asia. Russia's strategic geographical location enables it to efficiently serve both European and Asian markets.

Nevertheless, the Russian oil and gas sector faces multiple challenges. The heavy economic dependence on oil and gas revenues makes it susceptible to global price volatility. International sanctions from Western nations have limited Russia's access to foreign investment and advanced technologies. The aging infrastructure and a complex regulatory environment also add to the industry's growth obstacles.

In response to these challenges, Russia is actively investing in the modernization of its energy sector. Efforts are being made to integrate renewable energy sources and implement cutting-edge technologies to improve efficiency and sustainability. The global transition towards renewable energy presents both a challenge and an opportunity for Russia as it navigates the future landscape of its energy market.

LITERATURE REVIEW

Igorov and Petrochenkov (2019), in their work "Technological Innovation in Russia's Energy Sector," explore the impact of technological advancements, especially in digitalization and automation, on the Russian oil and gas industry. Their study emphasizes how implementing smart technologies is revolutionizing production processes, lowering costs, and improving safety measures in extraction and processing operations.

Mikhailova (2019), in "Technological Innovations in Russia's Oil and Gas Industry," examines the integration of advanced technologies within Russia's oil and gas sector. The study highlights adopting cutting-edge exploration and production technologies, essential for sustaining production levels in challenging and remote areas such as the Arctic. It underscores the importance of technological advancements for maintaining Russia's global competitiveness and reducing the environmental impact of its operations.

In "Regulatory Challenges in Russia's Energy Sector," Kuznetsov and Smirnov (2020) explore the regulatory obstacles affecting both domestic and foreign investments in Russia's oil and gas industry. They note that although the sector receives substantial government support, it is impeded by bureaucratic inefficiencies and a convoluted regulatory system, discouraging foreign investment and complicating project execution.

Petrov and Ivanov (2021), in "Global Influence of Russia's Oil and Gas Production," analyze Russia's position as a key oil and gas producer, emphasizing its ability to influence global oil prices and energy security. Their study underscores Russia's geopolitical and economic leverage, derived from its extensive natural reserves and strategic export capacity. The authors illustrate how Russia's energy policies are closely linked with its foreign policy objectives to advance national interests.

In their comprehensive study, "Challenges in Attracting Investments to Russia's Oil and Gas Sector," Romanova and Vasilyev (2021) investigate the investment climate in Russia's oil and gas industry. They highlight key policy obstacles impacting domestic and international investments, including unstable tax policies and a murky legal framework. The authors contend that these issues create an uncertain investment environment, which can hinder growth and innovation within the sector.

Fedorov and Alekseev (2022), in "Strategic Implications of Russia's Energy Export Policy," examine Russia's prominent role as a leading global energy supplier, focusing on how the country strategically leverages energy exports to strengthen national interests and geopolitical clout. Their analysis highlights the importance of energy exports in shaping Russia's international relations, particularly with Europe and China.

Chernov and Sidorov (2022), in "Economic Strategies for Reducing Oil Dependence in Russia," examine the economic risks linked to Russia's reliance on oil and gas revenues. Their research indicates that the fluctuation of global oil prices presents substantial threats to the Russian economy. They propose a more diversified economic approach, emphasizing the development of renewable energy sectors and the advancement of technological innovations to mitigate these vulnerabilities.

Larina and Petrova (2022), in "Environmental Practices in Russia's Oil and Gas Sectors," explore the environmental issues confronting Russia's oil and gas industry. Their study highlights the significant environmental impact of the sector, particularly concerning greenhouse gas emissions and ecological disturbances in oil-rich areas. Despite these challenges, they also observe an increasing awareness and

adoption of greener practices and technologies driven by regulatory pressures and global environmental trends.

Sokolov and Orlov (2023), in "Economic Impacts of Oil Dependence in Russia," examine the economic consequences of Russia's reliance on oil and gas revenues. Their paper delves into how global oil price fluctuations can profoundly affect the Russian economy, highlighting the urgent need for economic diversification. They also consider potential changes in global energy consumption, particularly the increasing adoption of renewable energy sources, which could present long-term challenges to the Russian oil and gas sector.

ASSESSMENTS

Russian Energy Strategy

In 2009, with the declared scope of protecting the internal resources and the interest of Russian companies and citizens, the "Energy Strategy of Russia".

Law's main aim is:

- > to implement coordinated strategies in order to assure the growth of the energy industry
- to promote the foundation of Russian incorporated companies in order to promote the state energy policy in international markets and to assure the development of the internal markets on competitive premises.
- > to ensure predictability of the sector regulation and create premises for investments.

Law also establishes the major guidelines regarding energy strategy like:

- ensure security for energy supply
- establish an energy efficient system
- ensure environment protection

For obtaining the goals stated in Energy Strategy for Russia, government focus on:

- establish encouraging climate for combustibles and energy sector, ensuring tax, subsidies, custom and antimonopoly promoting regulations
- > adopting new technical standards and implement energy efficiency requirements
- > promote strategic investment in sector, especially for innovation and energy saving
- rise control in order to increase management performance of the state companies involve in energy industry

The Energy Strategy settle three main guiding axes which should be followed and implemented:

- determination for achieving the goals establish by country's energy strategy
- coordination between development of the energy sector with entire development of the country in order to avoid appearance of discrepancies
- effective measures in order to reduce the qualitative differences between inside and outside country evolution of the industry

As can see from the above principles of energy sector development, we observe that Russian energy market development will still have a major pilar with the state sector.

Oil and Gas Energy Market Framework Legislations

Oil and gas sector main framework regulation is composed by:

- ▶ Law no. 2395/1 1992 `- regarding subsoil resources
- Law no. 60-1999 regarding gas supply in Russia
- Law no.117- 2006 regarding export of gas

Legislation on renewables is more recent and comprise:

- ▶ Law no. 261-2009 on energy efficiency
- \blacktriangleright Decree no.1 2009 regarding state policy to promote energy saving and usage of renewables
- Decree no.449- 2013 for promoting renewable energy on whole sale and capacity market

Competence of issuing the governing law and to overlook for their implantation is the task of the federal government Federal Ministry of Energy ensures the implementation of the government general legislation on energy sector.

For renewables and energy efficiency, the Federal Ministry of Industry and Trade have main task for rules implementation.

Federal Ministry of Natural Resources and Ecology enforces the natural resources and ecology regulations.

Extraction of natural subsoil resources is organized on license system which are issued by Federal State Agency on subsoil use which also have the information regarding geological data.

In Russia it is considered natural monopoly power transmission and distribution, oil and gas transport, and thermal energy delivery. These natural monopolies are under Federal Anti-Monopoly Service supervision. This federal service also has attributions for surveillance of defense sector and foreign investments in connection with soil and subsoil resources.

Heating supply, natural monopolies price and tariffs for electric energy and oil and gas transportation is also regulated by Federal Anti-Monopoly Service.

Federal Service for Environmental, Technological and Nuclear Supervision overlooks the safety of nuclear, electric and gas and thermal transportation and delivery.

Federal Service supervises the use of the soil and subsoil resources for Supervision of Natural Resources Use.

All federal services mentioned above have regional structures and subdivisions to fulfil their role and implement federal policy on this sector.

(Bogdanov, 2020- The Energy Regulation and Markets Review 2020 - Russia)

Oil and Gas Regulatory Authorities

Extraction of soil and subsoil resources is permitted on licensing procedure which Ministry of Natural Resources and Ecology issues.

Federal Agency regulates the sector for Subsoil Use - Rosnedra whose main role is to:

- Emit and cancel the extraction permits

- Receive and pass of the geological data
- Checking and acceptance of expansion plans

(Josefson et al, 2023- Oil and Gas Regulation in Russian Federation Overview)

The compliance with enforcement law and regulation is under the supervision of Rosprirodvadzor – The Federal Service for Supervision and Nature Use.

This federal service can suspend, restrict or close the activities of the companies involved in the oil and gas sector.

Human good health and right of market clients experience an important increase after COVID -19 pandemic and it is assured by Rospotrebnadzor- The Federal Service of Supervision.

Rostekhnadzor issues minning permits- The Federal Environmental, Industrial and Nuclear Service which also overlook the environmental issues.

(Josefson et al,2023- Oil and gas regulation in the Russian Federation: Overview)

Russia Oil and Gas Transport and System Operators. Distribution System

Exploitation and production of oil and natural gas safety is regulated by:

Safety Regulations for Oil and Gas Industry (covering both onshore and offshore facilities) 2020.

Industrial Safety Regulations for Oil Storing.

Adapted by Rostekhnadzor in December 2020 represent the key regulation in this sector until 1 January 2027.

Oil and gas transportation is state monopoly and it is assured through bellow three state-owned companies:

for oil expeditions -TRANSNEFT

➢ for oil products movement control − TRANSNEFTPRODUKT

for natural gas trunk pipelines – UGSS owned by GAZPROM

Transneft in order assure oil export, allocate access rights to pipelines to producers and major traders of oil products. Federal Government through Ministry of Energy set a detailed pumping schedule on each oil producer's Transneft system. The volume establish in program cannot be changed by oil producers.

Transnefteprodukt is the state natural monopoly for oil products which are transported throughout country according law147/1995 – Natural Monopoly Law.

The above-mentioned law, establishes also the rules for natural gas transportation through pipelines.

Operator of pipelines UGSS give access to independent producers taking in account the following circumstances:

existence of required capacity

- fulfillment of quality requirements
- availability of connections

The tariffs for pipelines gas transportation are establish by Federal Anty-Monopoly Service which can be personalized to regions.

Even it is not state monopoly, oil trunk pipelines are also owned by state-owned companies or Russian state.

As an exception to confirm the propriety federal government in oil and gas transport system we can mention Caspian Pipelines Consortium which transport oil from North of Kazakhstan to Black Sea ports.

Construction of transport pipelines for gas and oil transport and distribution overviewed by Planning Code and technical rules adopted by federal agencies which overwatch safety operation of the transport.

According to the law, the transport system for oil or gas are built only on state lands or in case they cross private lands, which are expropriated according to the law.

Construction permit for pipelines is issued by Rosnedra.

The natural gas production and transport pipelines system is organized under UGSS company owned by Gazprom.

There are also several vertically integrated joint-stock companies in gas and oil industry sector. The major ones are Rosneft, Lukoil, Gazprom neft, Surgutneftegas and Tatneft. There are privately owned companies (in some cases, with a substantial foreign stake) and state-owned companies.

Starting with 90's appears the concept of vertical integration oil and gas industry. Several vertically integrated joint-stock companies in the oil and gas sector were formed Rosneft, Lukoil, Gazprom neft, Surgutneftegas and Tatneft. These companies are both privately owned companies (in some cases, with a substantial foreign stake) and state-owned companies them. However, active foreign investments in the sector are restricted due to sanctions imposed by the United States, European Union and most European countries.

(Josefson et al,2023- Oil and gas regulation in the Russian Federation: Overview)

Today Oil and Natural Gas Sector

According to the Energy Strategy of Russia for the period up to 2030 adopted by the decree of the Russian government No. 1715-r dated 13 November 2009, the main goal in the oil and gas sector is to diversify the export markets away from the core European market to prospective eastern markets, and to develop oil and gas production and energy infrastructure in the northern Arctic, east Siberia and the far east of Russia. Another objective is to develop and deliver the LNG.

Natural Gas Production

According to available data on www.ceicdata.com Russia's natural gas production reach its maximum production on December 2021, 719,300 Cubic meters. This production represents the present record, having in view that in the period 2010-2021, the highest production was realized in 2018, 668,230 Cubic meters

Looking to 1960 till now statistics the average yearly production of gas is 547,150 Cubic meters, so the 2021 production represents an increase of over 30%. This production increase could be explained by the needed liquidities for the war with Ukraine, which was prepared to start.



FIGURE 1 RUSSIA NATURAL GAS PRODUCTION 2010-2021

Oil

In 2010-2021 Russia crude oil production was over 1960 -2021 yearly average production of 9,143.929 Barrel/day. In this decade the highest production was achieved on 2019, 10,479.532 Barrel/day but low from historic maximum of 11,152.736 Barrel/day realized in 1987.



FIGURE 2 RUSSIA CRUDE OIL PRODUCTION 2010-2021

According 2021, available data the electricity production sources are as bellow diagram.

FIGURE 3 RUSSIA ENERGY PRODUCTIION SOURCES 2021



Source: Own research

Over 60% of the thermal generation (gas, oil and coal) is from combined heat and power plants.

There 31 nuclear power plants in Russia being distributed in 10 locations with an installed capacity of 21 GWh

SWOT ANALYSIS ON RUSSIA OIL AND GAS MARKET

Strengths	Opportunities
Dominant Energy Producer: Russia holds a prominent position as one of the world's leading producers and exporters of oil and natural gas. Its vast reserves and robust production capabilities grant it substantial leverage in shaping global energy markets. Russia's energy sector plays a critical role in the country's economy, and its influence extends across Europe and beyond, affecting energy prices, supply chains, and geopolitical dynamics. This dominant status enables Russia to be a key player in international energy discussions and decisions, often swaying market trends and policies.	Adoption of Cutting-edge Technologies: The country holds considerable potential for growth by integrating advanced technological solutions across various domains. This includes implementing digital oilfield technologies for better data management and operational efficiency, utilizing enhanced oil recovery techniques to maximize output from existing wells, and advancing Arctic drilling methods to tap into untapped reserves. These innovations can significantly boost productivity, optimize resource extraction, and ensure sustainable development within the energy sector.
Important Natural Resources: The nation holds some of the largest natural gas reserves globally, along with substantial oil reserves. These extensive resources secure its production capabilities and position it to remain a leading energy producer for the foreseeable future. The sheer volume of these reserves underpins the country's long-term energy	Market Diversification Strategy: By broadening its market base and enhancing trade relations, particularly with Asian countries, Russia can mitigate its dependence on European customers. This strategic approach allows Russia to tap into the burgeoning energy demand in the East, opening new avenues for growth and stability.

Strengthening these trade connections not only diversifies Russia's export destinations but also fortifies its position in the global energy market, ensuring a more resilient and adaptable energy sector.
Investment in LNG Technology : By advancing its liquefied natural gas (LNG) production capabilities, Russia can access distant markets that are beyond the reach of traditional pipeline delivery. This development not only enhances Russia's market reach but also enables the country to meet the growing global demand for natural gas in regions previously inaccessible. Expanding into LNG production provides Russia with the flexibility to diversify its export destinations and strengthens its position in the global energy market, ensuring long-term growth and stability.
Shift Towards Renewable Integration: Integrating renewable energy sources into its comprehensive energy strategy could significantly boost Russia's sustainability efforts. This move would not only reduce the environmental impact of its energy production but also align Russia with the global transition towards cleaner energy. Embracing renewables, such as wind, solar, and hydroelectric power, can diversify Russia's energy portfolio, reduce its carbon footprint, and position it as a key player in the international push for sustainable energy solutions. This strategic shift would enhance Russia's competitiveness in the evolving global energy market, promoting long-term economic and environmental benefits.
<u>Threats</u>
Impact of International Sanctions: International sanctions, predominantly from Western nations, pose significant challenges to Russia by restricting access to foreign investment, advanced technologies, and certain international markets. These sanctions limit the country's ability to modernize its energy infrastructure, adopt innovative technologies, and expand its market reach. Consequently, the growth and development of the sector are adversely affected, leading to reduced economic opportunities and slower technological advancement within the industry.

Infrastructure Modernization Requirements: A	Strong Global Competition: The rapid rise of
significant portion of Russia's oil and gas	other major oil and gas producers, including the
infrastructure is aging and urgently needs	U.S. shale industry and Middle Eastern countries,
comprehensive upgrades. These improvements are	poses a significant threat to Russia's market share
necessary to meet modern efficiency and safety	and influence. These competitors are increasing
standards, ensuring reliable and sustainable	their production capabilities and expanding their
operations. Upgrading pipelines, refineries, and	market presence, which challenges Russia's
other critical facilities will enhance operational	dominance in the global energy sector. This
performance, reduce environmental risks, and	heightened competition pressures Russia to
maintain the competitiveness of Russia's energy	innovate and adapt to maintain its competitive
sector in the global market.	edge and secure its position in an increasingly
	crowded and competitive market.
Constant De contrate Englisher en estat	O'l Deles Is to bill the The inductor's second is
Complex Regulatory Environment: The sector is	Oil Price Instability: The industry's revenue is
onen innuenced by a convoluted and constantly	might susceptible to the volatility of global of
evolving regulatory framework. This complexity	dremetically alter the according landscape
and increasing compliance costs. Additionally, the	impositing profitability and financial planning. The
frequent changes and unpredictability in regulations	unpredictable nature of oil prices creates a
complicate operational planning and decision	challenging environment for long term investment
making processes making it more challenging for	and operational strategies, forcing the industry to
companies to maintain consistent and afficient	constantly adapt to changing market conditions
operations. This regulatory volatility can hinder	This sensitivity to price shifts underscores the
long term strategic development and impact the	inherent economic risks and uncertainties within
overall attractiveness of the sector to international	the sector
investors	the sector.
investors.	
Environmental Regulatory Compliance: The	Global Energy Shifts: The accelerating global
industry is subject to increasing scrutiny over its	transition towards renewable energy sources could
environmental practices, facing significant	significantly decrease long-term demand for fossil
pressures to mitigate pollution and lower	fuels. This shift poses a substantial threat to
greenhouse gas emissions. Regulatory bodies and	traditional oil and gas markets, as more countries
environmental groups are intensifying their	and industries adopt cleaner energy alternatives.
demands for cleaner and more sustainable	The movement towards sustainability and reduced
operations. This heightened focus on environmental	carbon emissions is driving investments in solar,
compliance necessitates substantial investments in	wind, and other renewable technologies,
green technologies and more stringent adherence to	potentially leading to a decline in the reliance on
environmental standards, impacting the industry's	oil and gas. This trend challenges the conventional
operational strategies and long-term sustainability	energy sector to adapt and innovate to remain
goals.	relevant in a rapidly changing energy landscape.

CONCLUSION

The Russian oil and gas market represents a crucial part of the country's economy, supported by extensive natural resources and strong production capabilities. Russia's position as a top global energy producer is maintained by its vast oil and natural gas reserves, primarily in Siberia and the Arctic. This strength allows Russia to significantly influence global energy markets and provide a consistent energy supply to both domestic and international customers.

The heavy reliance on oil and gas revenues makes Russia vulnerable to global price volatility, which can lead to economic instability. International sanctions, mainly from Western nations, further complicate

the situation by restricting access to foreign investment, advanced technologies, and certain international markets. These sanctions hinder the necessary modernization of Russia's aging infrastructure.

Russia's regulatory environment is complex and frequently changing, creating uncertainties that deter foreign investment and complicate operational planning. Increasingly stringent environmental regulations add further pressure to reduce pollution and greenhouse gas emissions, requiring substantial investments in green technologies.

Russia is investing in developing liquefied natural gas (LNG) production to reach more distant markets and exploring integrating renewable energy sources to enhance sustainability. Russia's strategic location allows it to efficiently serve both European and Asian markets, maintaining a competitive edge in the global energy supply.

By adopting advanced technologies and expanding its market base, especially in Asia, Russia can reduce its dependency on European customers and tap into the growing energy demand in the East.

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