Western Sanctions and Russia's Role for Global Energy

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WESTERN SANCTIONS AND RUSSIA'S ROLE FOR GLOBAL ENERGY

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ANALYSIS

Survival of the Fleetest: Russian Oil Companies under Western Sanctions

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Abstract

This article explores the impact of Western sanctions on the Russian oil sector since February 24, 2022. These sanctions have targeted individuals, companies, technologies, and processes, with the US banning Russian oil imports and the EU imposing various restrictions on investments, energy technologies, and goods. Despite these challenges, Russian oil companies have shown remarkable resilience. In 2022, crude oil production and oil exports increased, and oil revenues grew. Gasoline and diesel fuel production also jumped significantly. Russian companies adapted to sanctions by focusing on import substitution and seeking new partners in Asia and other parts of the world. In particular, they increased exports to China and India and strengthened ties with Chinese and Indian energy companies. However, the longer-term outlook is less promising, particularly when it comes to developing hard-to-recover reserves, which will be a very serious challenge without state-of-the-art Western technology.

After February 24, 2022, Russia's oil sector was hit by an unprecedented avalanche of Western sanctions targeting individuals, companies, technologies, and processes. The US banned the import of Russian oil and petroleum products in March 2022. Thereafter, the G7 and the EU imposed various restrictions, including on investments in Russia's energy sector and supplies of energy technologies and goods. By the end of 2023, twelve packages of EU sanctions had been introduced, many of which affected the oil sector. International majors such as ExxonMobil, Shell, and BP left Russia, writing off billions in assets. Foreign oil service companies largely halted their Russian activities.

Moreover, the EU (and some other countries) have imposed an embargo on seaborne imports of Russian oil (from December 5, 2022) and petroleum products (from February 5, 2023). This has been combined with an EU and G7 price cap on Russian oil ($60/barrel) and petroleum products ($100/barrel for light fractions and $45/barrel for heavier fractions). This mechanism means that these goods can only be exported to third countries with the use of Western transport, insurance, technical, and financial services if they are sold below the price cap.

These restrictions were expected to undermine Russia's oil sector, crippling its ability to produce and export hydrocarbons. However, these expectations have not fully materialized. In 2022, Russian crude production grew by 2% and oil exports by 7%. Russia's petroleum revenues rose by 28% in the same year due to high oil prices during this period (CDU TEK 2023). Moreover, Russian oil companies drilled over 28,000 km of wells in 2022, breaking a 10-year record (Forbes 2023a). Gasoline production jumped by 4.3% and production of diesel fuel by 6% (CDU TEK 2023). In September 2023, Russian oil export revenues surged by $1.8 billion to $18.8 billion. Crude exports rose by 460,000 barrels per day (b/d) to 7.6 million b/d (IEA 2023). According to an October 2023 IMF report, despite the price cap, exports of energy resources remain stable, indicating that Western restrictions on Russian crude supplies have had at best mixed results (IMF 2023).

Furthermore, Rosneft—despite being hit the hardest by sanctions among its peers—demonstrated robust financial results in 2022: its net profits during the first half of 2023 were 45% higher than during the same period of 2022. The capitalization of Rosneft, Gazpromneft, and LUKOIL, meanwhile, broke records in 2023 (Vedomosti 2023).

In September 2023, Russian President Vladimir Putin stated that Russia's oil and gas corporations have coped with sanctions effectively: "They feel quite confident, develop, and successfully solve their problems, including in the sphere of foreign trade. They find new partners and change logistics and export routes" (Regnum 2023). However, despite this praise of Russian oil companies' resilience, while the short-term outlook for Russian oil seems quite positive, its longer-term prospects are less rosy.

Sanctions-2014: Forewarned is Forearmed

The resilience of Russia's oil corporations largely stems from the fact that they approached February 24, 2022, in a fairly robust financial state, with low debts and production costs (Moscow Times 2022). In addition, the Russian petroleum sector is used to sanctions. After 2014, the sector faced restrictions targeting deep-water, unconventional, and Arctic oil, as well as specific Russian companies and individuals. Moreover, the oil price also collapsed in 2014. Yet despite this perfect storm, Russian oil successfully weathered the post-2014 Western sanctions.

The companies' response to sanctions was sensible, including import substitution, a turn to new partners in

the East, and requests for financial assistance from the state. Arctic, offshore, and unconventional oil projects implemented with Western companies were shelved. For instance, the development of the Pobeda field—discovered by Rosneft and ExxonMobil in the Kara Sea—had to be cancelled because the U.S. major halted operations on the Russian Arctic shelf and Rosneft was technologically unable to develop Pobeda on its own. However, projects that did not require Western involvement, such as Gazpromneft's work in the Prirazlomnoye field and Surgutneftegas' and Tatneft's work on the Bazhenov shale formation, proceeded (Poussenkova 2022).

Moreover, Russian oilmen launched import substitution programs. Thus, Rosneft joined a consortium operating Zvezda, a new ship-building wharf in the Far East of Russia that largely focuses on the construction of vessels intended for the energy sector. It also began to acquire domestic oil service companies in order to strengthen its in-house competencies. Gazpromneft developed unique techniques for extracting hard-to-recover oil in West Siberia. Over the past decade, Rosneft and Gazpromneft have further begun to manufacture their own refining catalysts.

Led by Rosneft, Russian oilmen increased their exports to China and strengthened business cooperation with Chinese players. Simultaneously, Chinese and Indian energy corporations expanded their position in the Russian oil sector by acquiring stakes in companies and projects.

Interestingly, the post-2014 Western sanctions forced Russian companies to adapt more flexibly to new restrictions, and sometimes proactively prepare for them. This was made possible by the market relations, albeit with a Russian twist, that were established in the oil sector following the reforms of the 1990s.

While Russian companies suffered but survived the restrictions, Chinese and Indian players actively benefitted from the post-2014 sanctions, as they were able to gain access to Russian assets on attractive terms (Overland and Poussenkova 2022).

Oilmen Propose, but Sanctions Dispose

The post-2014 sanctions were a very mild rehearsal for the post-2022 restrictions. In response to the latter, Russian oil companies were forced to rapidly adjust their strategies: they accelerated import substitution, changed export destinations, reformed logistics and methods of settlements, bought tankers, and organized parallel import schemes.

Admittedly, the post-2014 import substitution was not an unequivocal success. Instead, the picture remains quite mixed: in the basic segments of petroleum equipment, imported electric centrifugal pumps or equipment for well-workover are almost non-existent; however, offshore drilling rigs still depend on imports for 90% of their components, offshore seismic for 70%, and support vessels for 80% (Lenta.ru 2023).

This problem has only been aggravated by the recent departure of foreign companies. Vagit Alekperov, the former CEO of LUKOIL, considers the refusal of Western oil service companies to invest in Russia "a serious blow." Still, he believes in Russia's technological prowess, indicating that "deadlines of project implementation will be postponed, but in general the Russian oil sector can develop normally" (Moscow Times 2022).

However, his optimism may not be merited. According to Vygon Consulting, in 2021, Russian oil companies accounted for 50% of oil services and Russian independent service providers for 30%. Foreign firms only represented 15–20% of the total Russian market (Forbes 2023a), but it was the high-tech segment that was essential for developing complex fields. Indeed, import dependence is most intense when it comes to state-of-the-art systems like well-injection, multiple hydro-fracking, horizontal drilling, etc.

To counteract international sanctions, in May 2022, Russia introduced a parallel imports program targeting Western goods (Telegraph 2023). Former Soviet states such as Armenia and Kazakhstan quickly become hubs for this practice. Now, Western goods no longer sent to Russia can be imported via such third countries, whether with or without the knowledge of their original suppliers.

Parallel imports are important for the survival of the oil sector, but they are unrealistic in some essential spheres, such as IT. While the Russian oil sector is making some progress when it comes to digitalization, domestic IT still only meets 5–10% of the sector's needs. Russia has not been able to develop a substitute for the software needed for the hydrodynamic modeling of petroleum fields (Wyrębkowski 2023). Moreover, the post-2022 brain drain in the IT sector has aggravated the preexisting shortage of high-class computer specialists in Russia. Besides, Russian oil companies depend not only on foreign software, but also on Western hardware, electronic components, and the high-level expertise necessary to develop hard-to-recover reserves. Per James Henderson of the Oxford Institute for Energy Studies, "Russian service companies can copy a significant part of equipment, but not software for interpreting geological and geophysical data. Therefore, implementation of Vostok Oil, for example, becomes problematic" (Moscow Times 2022).

Oil production in Russia could fall by 20% by 2030 if Russian oilmen do not rapidly develop their own oil-service segments and substitute Western equipment with adequate local analogues, warned the consultancy Yakov & Partners (formerly McKinsey in Russia) (Lenta.ru 2023).

Moreover, sanctions pressure in this sphere is growing. Interestingly, SLB initially maintained and even slightly grew its business in Russia, while Baker Hughes and Haliburton departed soon after February 24, 2022. In July 2023, however, SLB announced that it would halt shipments of technology and equipment to Russia "in response to the continued expansion of international sanctions" (PBS 2023).

Also in July 2023, the US announced new restrictions that target Russia's ability to carry out advanced drilling and well completion. The expanded blacklist includes the engineering company Nipigazpererabotka as well as the key Russian drillers BK Eurasia and Siberian Service Company and their affiliates. U.S. officials said the goal is to achieve "continued degradation of Russia's future energy production and export capabilities" (Upstream Online 2023).

Despite this growing pressure, many Russian analysts are fairly optimistic. "The sector continues to function, to a great extent, as before. Russia was able to retain the lion's share of competencies, assets and technologies in the oil service sphere," noted Vitaliy Mikhalchuk from DRT (formerly the Russian division of Deloitte) (Forbes 2023a).

However, Adnan Vatansever of King's College London emphasizes that the departure of foreign oilfield service companies would hurt Russian production more than the departure of oil producers. Russian oilmen can find a market for their crude without the majors to buy it. But production would fall significantly without Western companies' equipment and expertise. Theoretically, China could supply technology and materials to develop hard-to-recover reserves, but Vatansever is right to doubt that China would be a viable substitute for Western know-how (PBS 2023). Indeed, it is unclear if Chinese petroleum entities are either willing or able to replace their Western counterparts in Russia. True, the leading Chinese oil sector players have made significant technological achievements; however, Western organizations still dominate in the oil service sector, which is essential for Russia. Tellingly, there is only one Chinese actor, COSL, in the list of the world's top ten directional drilling companies, with the remaining nine all based in the West; China is not represented at all in the list of the top ten hydrofracking companies (Blackridge 2023). However, these two processes (directional drilling and hydrofracking) are crucial for the development of Russia's mature oil fields. Moreover, since February 2022, Chinese companies—whether driven by political, economic or financial considerations—have not made any new upstream investments in Russia, nor have they initiated deals in oil or gas, or long-term import contracts, even though they could have taken advantage of the gaps left by departing Western majors (SCEEUS 2023).

Interestingly, on February 10, 2023, Russian Vice-Premier Alexander Novak announced that Russia would voluntarily reduce oil production by 500,000 b/d in March. However, EU representatives indicated that Russia had been forced to take this "voluntary" measure due to sanctions, as Russian oil companies' loss of access to essential technologies meant that they could not support the earlier production volumes (Forbes 2023b).

An Offer (of Oil) They Could Not Refuse

In general, analysts believe that the Russian oil sector's prospects hinge not only on companies' ability to maintain production, but also on the availability of a market for Russian oil and fuel (Moscow Times 2022).

Prior to the introduction of the embargo and price cap, Russia's oil exports were fairly diversified. Thus, in January–October 2022, the EU accounted for 42%, North America for 1%, China for 36%, and India for 12%, while other countries in Asia received 3% of Russian oil exports. With regard to Russia's seaborne petroleum products, the EU's share was 52%, Asia and Oceania's 18%, the Middle East's 8%, that of non-EU Europe and Eurasia 10%, Africa's 5%, North America's 5%, and South America's 2% (EIA 2023).

The new restrictions changed this picture radically. According to Alexander Novak, against the background of sanctions, Russian companies adjusted their logistics and reoriented deliveries of oil and petroleum products to friendly countries, primarily those of the Asia-Pacific region for crude and those in Africa and Latin America for fuel (CDU TEK 2023).

Thus, in January 2022, Europe imported 1.3 million b/d of Russian crude, while Asia purchased 1.2 million. By January 2023, Russian sales to Europe had dropped below 100,000 b/d, while export to Asia had surged to 2.8 million b/d. Thus, Asian demand more than offset the loss of oil exports to Europe (East-Asia Forum 2023).

Indeed, oilmen quip that "oil always finds a buyer," which has certainly been true of Russian crude. With the US–EU export ban, India, China, and Turkey now consume 70% of total Russian seaborne oil exports (though admittedly Russian deliveries to China started growing well before 2022). During the first half of 2023, Russia supplied 1.3 million b/d to China by sea and 800,000 b/d of ESPO blend by pipeline (Oil and Capital 2023).

Interestingly, after February 2022, India became the leading importer of Russian oil (more than 2 million b/d since April 2023). Russia now accounts for 39% of Indian oil imports. In turn, India's fuel exports to Europe skyrocketed—especially diesel (produced from Russian crude). The new Indian route, however, comes at a significant cost for Russian oilmen: substantial discounts have to be offered, while freight rates are higher due to longer transportation routes (El Pais 2023). Thus,

Asia can hardly be a complete replacement for Europe when it comes to Russian crude supplies. Moreover, India pays for Russian oil in rupees, which are difficult and expensive to convert into U.S. dollars or Euros.

In other words, India and China, the two main beneficiaries of export restrictions, have been taking advantage of Russia's dependence on them to secure discounts or preferential terms. Moreover, excessive dependence on these two markets poses significant risks to Russia's energy security.

As far as Russia's fuel exports are concerned, in the first half of 2023 they rose to 3 million b/d. Russia significantly increased deliveries to existing consumers (Turkey, Egypt, and the UAE) and began supplying non-traditional customers, including those in Africa and South America. This new trend is similarly fraught with new risks. African markets are relatively small compared to their EU counterparts and do not show significant growth potential, while transport to Latin America is expensive.

Saudi Arabia and the UAE import cheap fuels from Russia to meet their domestic demand or for re-export. Meanwhile, they sell their own products in the EU at higher margins, thus benefitting from sanctions themselves. It can be assumed that a certain proportion of Russian oil is refined in the Middle East and some of the resulting petroleum products are exported to Europe, thereby bypassing restrictions on Russian products.

Specifically, exports of diesel fuel from Russia during the first half of 2023 grew by 11% compared to the same period of 2022, to 1,055 million b/d. African countries now account for 20% of Russian diesel exports. Currently, the three biggest buyers of Russian diesel are Turkey, Brazil, and Saudi Arabia. Interestingly, in October 2023, Brazil significantly increased its imports of Russian diesel fuel, becoming the top importer thereof worldwide: daily sea deliveries to Brazil rose by 27%, to a record-high 200,000 b/d. Presumably, Russian oilmen managed to undercut U.S. diesel suppliers to Brazil by offering more attractive terms (Kommersant 2023).

Also, a new sanctions-induced trend emerged: in Summer 2023, Russian oilmen sent the first tankers containing Urals oil from Primorsk and Ust-Luga ports through the Northern Sea Route (NSR) to China. The average sailing time is 30–35 days—or 10 days less than the traditional route via the Suez Canal—but the ice-free season lasts only 2–4 months. Gazpromneft transports ARCO blend from its Arctic projects via the NSR, and Rosneft plans to begin delivering oil from its Vostok Oil project in 2024. Interestingly, experts believe it is not only climate change that promotes the use of the NSR, but also sanctions. The shorter delivery time along the route permits oil companies to reduce costs, which is particularly important given the restrictions that they face (Meduza 2023).

Thus, Russian oil companies, by focusing heavily on cost reduction, are doing their best to optimize deliveries and increase their margins in this challenging new situation.

Interestingly, in February 2023, Alexander Dyukov, head of Gazpromneft, said that "Western sanctions had changed the market structure and logistics, leading to rising transportation costs and increased prices for buyers" (Gazeta.ru 2023). Therefore, export restrictions have hurt Russia's traditional consumers in the West and North (who have had to secure new sources of petroleum, sometimes at higher cost) while benefitting new customers in the South and East (who have demanded—and received—price discounts from Russia).

The Price Cap that Launched a Thousand Ships

Recently, Russian oil companies vividly demonstrated their adaptability in coping with sanctions by counteracting the price cap. The price cap was planned as an innovative measure to reduce Russia's revenues while keeping its oil flowing to the global market in order to avoid price hikes.

Artem Deev from AMarkets noted three ways for Russian oilmen to avoid export sanctions: purchase vessels for the "shadow fleet," create "blends" (e.g., the Latvian blend, whereby Russian crude oil is mixed in Latvian ports with other blends; such oil can be sold without any restrictions), and establish their own insurance companies or use such organizations in friendly countries (News.ru 2023).

Russia's crude used to be sold overseas by the trading arms of Russian oil producers, those of Western oil majors, and Swiss commodity merchants. Whereas in March 2022 Western entities transported or insured over 80% of Russian exports of crude and fuels, by June 2023 their share stood at 55% and 65% for oil and oil products, respectively. As Western traders departed, newcomers (mostly with no oil-trading background) emerged to sell to friendly countries (Washington Post 2023).

Following the introduction of the embargo and the price cap, Russian exports at first declined drastically before recovering two months later. The bulk of Russia's oil now runs through shadow networks that do not recognize the price cap but are not illegal because they use non-Western logistics and deliver to countries that did not join the embargo.

The shadow fleet has become one of the key mechanisms for evading the price cap. S&P Global estimated that Russia's shadow fleet numbered some 450 vessels in March 2023. Many of these obsolete tankers were acquired or leased by Russian players in anticipation

of the price cap (to the delight of their former owners). Most of them are registered to offshore companies in countries with lenient shipping rules.

Other cap-evading methods include turning off transponders or sending false location signals. Russian fuels and crude have also been trans-shipped in ship-to-ship operations.

According to the Economist, shadow trade appears to be fueled by credit from the Russian state. New Russian firms have also stepped in to provide insurance. The recently established traders buy products in a Russian port at a price that allows the use of Western transport and insurance services, then resell them to end users at a higher price. Presumably, these traders are linked to Russian oil companies, which are thus trying to evade the sanctions (The Economist 2023).

Being well aware of this practice, the West continues to tighten control over implementation of the price cap. In mid-October 2023, the U.S. Treasury Department imposed penalties on Ice Pearl Navigation Corp., a Turkish shipping company, for transporting Russian ESPO crude priced above $80/barrel. It also sanctioned Lumber Marine, a UAE-based shipping company, accused of carrying oil priced above $75/barrel on a SCF Primorye tanker registered in Liberia (Washington Post 2023).

The G7 considered the price cap generally successful because oil prices did not surge and Russian petroleum profits were eroded. The U.S. Treasury said the cap resulted in a 40% drop in Russia's oil revenues in the first quarter of 2023 (Voice of America 2023).

Indeed, instead of selling oil at the spot price, Russia has to negotiate the value of each shipment with potential buyers, giving them the bargaining power to drive prices down. Russian oilmen also face higher shipping costs or have to invest in the shadow fleet; insurers charge a larger premium; and Russian oil tankers have to travel much longer distances to reach their customers.

Yet the cases of Iran and Venezuela show that Russian oil companies will gradually be able to evade the measure. Thus, the price cap is only a medium-term tool; there is no such a thing as a sanction that works forever (Foreign Policy 2023).

Significantly, the 11th package of sanctions is aimed at preventing Russia from evading previous restrictions. It includes, among other things, a ban on the entry to EU ports of vessels that are suspected of transporting oil and fuel in evasion of sanctions. Moreover, the West is trying to tighten the screws, because officials admit that "almost none" of Russian crude was sold below the cap in October 2023. Thus, in November, information appeared that Denmark will be tasked with inspecting and potentially blocking tankers with Russian oil sailing through its straits without Western insurance, under laws permitting states to check vessels they fear pose environmental threats (Financial Times 2023).

Presumably, the impact of Western sanctions on the Russian oil sector will evolve over time. In its Energy Outlook-2023, BP notes that the near-term prospects for Russian crude production will be determined most significantly by the sanctions on imports of Russian petroleum. Later, the outlook will be most heavily influenced by the impact of sanctions on Russia's access to Western technology and investment. Russian output is projected to decline, falling from 11.5 Mb/d in 2019 to 5.5–6.5 Mb/d in 2035—and to 2.5 Mb/d by 2050—under the Accelerated and Net Zero scenarios. Under the New Momentum scenario, Russian oil production is expected to fall to 8.5 Mb/d and 7 Mb/d in 2035 and 2050, respectively (BP 2023).

Outlook

Despite the flexibility demonstrated by Russian oilmen in coping with Western restrictions, technological sanctions will create problems for the development of hard-to-recover reserves, which will come to account for a growing share of Russian crude production as conventional reserves are gradually depleted. Thus, while the near-term future of Russia's oil companies seems reasonably stable, their longer-term prospects will hinge upon their ability to counteract Western technological sanctions, either by implementing wide-ranging import substitution or by maintaining parallel imports of essential technologies. Presumably, the tug-of-war between the introduction of Western sanctions and the countermeasures of Russian oilmen will continue and become more sophisticated and innovative as time goes on.

About the Author

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ANALYSIS

Current State of the Russian Gas Market and Export Options

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Abstract

This article provides an overview of the current situation in the Russian natural gas sector, looking at the supply–demand balance for natural gas and some key features of the sector's organization. It also examines the main opportunities for pipeline and LNG exports. While Russia is rebalancing its East–West gas supply, the planned pipelines will not fully compensate for export losses in the European direction. The LNG sector has significant potential, but only if technological self-sufficiency is achieved.

Russia's presence in international gas markets has seen significant changes since the upheavals of 2022–2023. It is impossible not to note the stunning reduction in export volumes to Europe—a traditional market for Russia's substantial reserves in Western Siberia and Yamal, and the one that makes the most sense from a cost perspective. In this context, it has obviously become necessary to reorient export flows to the east. The crisis of 2022–2023 will likely have an impact on the domestic gas market in Russia as well: the problems of organizing Russia's gas sector have surfaced, which may have far-reaching consequences. This article examines the current state of the gas market in Russia and the possibilities for Russian gas exports.

Russia's Gas Market in 2023: A Precarious Balance

Looking at the supply and demand balance in the natural gas market in Russia, 2023 is marked by a surplus in supply. This surplus is chiefly a consequence of dwindling export volumes, particularly to European markets. The socio-economic development forecast for the Russian Federation for 2024–2026, published by the Ministry of Economic Development in September 2023 (Ministry of Economic Development of the Russian Federation 2023), predicts a 5% decrease in gas production, projected to reach 642 billion cubic meters (bcm) in 2023, including associated gas. Notably, August 2023 witnessed the beginning of a growth trend in production for the first time in 16 months—which can be attributed primarily to the low base of the summer of 2022—and this year-over-year growth continued into the fall (Dyatel and Kozlov 2023a; Interfax 2023a). The decline in exports was far more pronounced than the initial fall in production, with pipeline gas exports projected to decrease by an additional 23%—to 97 bcm—in 2023 (Ministry of Economic Development of the Russian Federation 2023).

These declines are not a consequence of sanctions but are rooted in the loss of transportation capacity, the reluctance of some European counterparts to comply with new rules (in particular, transactions in rubles), and the deliberate policy of the European Union to curtail Russian pipeline gas deliveries. Consequently, for the second consecutive year, the Russian gas sector finds itself grappling with an excess of gas supply in the domestic market as a result of diminishing export volumes and insubstantial growth in domestic gas consumption.

The Evolving Landscape of Gas Extraction

On the surface, the developments in Russia's natural gas production can be described as a tentative recovery

after a period of substantial decline (see Figure 1). Gazprom's production has suffered the most from the loss of external markets. In the first half of 2023, the company's production of natural and associated gas in the Russian Federation amounted to 180 bcm, which is nearly 25% less than the same period in 2022 (PJSC Gazprom 2023a, p. 8). Sales revenue decreased by approximately 40%, while capital expenditures increased by 20% "due to the active implementation of strategic projects" (PJSC Gazprom 2023a, p. 12).

By contrast, most independent gas producers experienced an increase in production (Vedomosti 2023a). For example, Novatek—the second-largest natural gas producer in Russia—increased production by 1% in the first half of 2023 compared to 2022 (PJSC Novatek 2023a). Meanwhile, Novatek's gas sales volumes in international markets increased by over 50%, from 4 bcm in the first half of 2022 to 6.2 bcm in the first half of 2023.

Three factors—a low base from 2022; increased exports to the east, especially China; and higher demand due to colder temperatures in western Russia in October—are driving production stabilization and year-over-year growth.

Beyond this surface picture, two other major trends should be highlighted. First, the natural gas extraction sector in Russia is currently undergoing a significant transformation characterized by rising production costs (Kulagin et al. 2023). This upswing is a direct result of the necessity to transition from current, depleting deposits to more challenging projects. This is particularly true for Gazprom, a stalwart of Russia's gas industry. Notably, deposits such as Medvezhe or Yamburg [Yamburgskoe] in the Nadym-Pur-Taz (NPT) basin are reaching the latter stages of their productive life, prompting Gazprom to explore more challenging projects to make up for the declining production at NPT. Such projects include Bovanenkovo and Kharasaveiskoe on the Yamal peninsula. For its part, Novatek's core fields and license areas are primarily located in the Yamal-Nenets Autonomous Region (PJSC Novatek 2023b). While the company has a substantial number of prospective fields, it proposes to promote the production of gas from hard-to-recover deposits of the Nadym-Pur-Taz area, where conventional fields are 80% worked out (Vedomosti 2023b).

The second trend is that the Russian natural gas market can no longer be referred to as a monopoly, even by formal criteria. Instead, it is better characterized as an oligopoly with three dominant companies: Gazprom, Novatek, and Rosneft (see Figure 2). These companies represent the largest shares of production and sales and exert significant influence on regulatory decisions regarding the long-term development of the market, sometimes leading to a delay in addressing changes that may not align with their interests.

The Domestic Market Dilemma

The domestic market, despite its potential, cannot immediately act as a viable substitute for the lost export volumes.

Traditionally, the *power generation sector* has been the main consumer of natural gas in Russia. Current demand from this sector is lower than in 2018, having failed to recover fully after COVID-19. As a result, industrial production has become the largest driver of demand (see Figure 3). The electricity generation sector has upside potential for natural gas demand due to fuel-switching in areas of Eastern Russia. It is expected that Russian cities and towns along the prospective routes of the Eastern export will also receive natural gas once these projects are constructed. On the other side of the scale are energy-efficiency improvements in those regions in the European part of Russia that have historically used natural gas for power and heat generation.

The *industrial production sector* demonstrated the most substantial growth in 2021–2022, increasing by 6% compared to the 3% increase in overall demand during this period (see Figure 4). A further increase in industrial production is expected in 2023. In the medium-term perspective until 2026, sustained growth in industrial manufacturing is anticipated (Ministry of Economic Development of the Russian Federation 2023, p. 31). Natural gas plays a crucial role in the petrochemical industry, serving not only as fuel, but also as a feedstock for the production of ammonia, methanol, acetylene, nitrogen fertilizers, and a wide range of chemical intermediates. The largest consumer of gas in the industrial sector is actually the ferrous metallurgy sector. In metallurgy and engineering, natural gas is also employed for heating the rolling, forging, thermal, and melting furnaces. The trend anticipated by the Ministry of Economic Development would lead to an increase in natural gas demand.

The *residential and commercial sector* represents another important segment of natural gas demand. In this case, the increased demand is driven primarily by the process of "gasification," i.e., the connection to the gas grid of new users who previously lacked such a connection. While gasification is progressing slowly, it has the potential to increase domestic demand by an additional 20 bcm by 2030.

Summing up the three gas-demand heavyweights, we can conclude that while there is upside potential in demand from electricity generation, the industrial and gas-processing sectors, and residential gasification, the impact of this will not be seen for a few years. If we compare some projections of demand increases by 2030 (e.g., Tikhonov 2023), we can see that by the end of the decade, domestic demand will still fall short of losses in exports in 2021–2023 (see Figure 5).

Minor sectors of natural gas consumption in Russia include transportation and autonomous gasification via liquefied natural gas (LNG):

Transportation: For the past four years, Russia has implemented a program for the development of the natural gas vehicle market. The program, which covers both compressed natural gas (CNG) and LNG, provides government subsidies to expand the gas refueling infrastructure and increase the number of vehicles using natural gas. These initiatives led to a rise in consumption of gas as a motor fuel from 0.7 bcm in 2018 to 1.7 bcm in 2022, with a forecasted consumption of 2.17 bcm in 2023. However, this still does not constitute a significant share of overall consumption. The Ministry of Energy's target for the volume of natural gas consumed as motor fuel by 2035 is 13–15 bcm (Tavdidishvili 2023).

The development of *autonomous gasification with LNG* is another channel for increasing domestic natural gas consumption. The concept involves constructing small-scale LNG plants in areas with existing gasification and technical limits for natural gas. The LNG would then be transported to non-gasified settlements via both road and rail to meet various public needs, including housing and communal services. The Republic of Sakha (Yakutia) could potentially serve as a pilot region. The estimated consumption potential of natural gas for autonomous gasification purposes in Yakutia is around 0.3 bcm per year. The implementation of the first pilot project is scheduled for 2024, and its successful outcome is expected to lead to the effort being extended to other regions of the country (Tavdidishvili 2023).

To sum up, the growth prospects of demand volume are modest, meaning that the domestic market has limited capacity to absorb the existing surplus. In addition, artificially restrained gas prices, coupled with cross-subsidization, impede genuine inter-fuel competition. This has led to a paradoxical situation in which gas companies are compelled to supply gas at a loss over long distances while local energy sources struggle to achieve competitiveness within this constrained environment (Kulagin et al. 2023).

Organizational Structure as the Main Challenge

Despite dramatic shifts in key performance indicators, the organizational structure of Russia's gas sector remains largely unchanged. A stable model has emerged in recent decades, encompassing various elements:

- Supplying the domestic natural gas market at a loss;
- Cross-subsidization through European exports, with Gazprom acting as a pivotal revenue generator, forming the basis for cross-subsidization and fulfilling tasks important to the state; and
- A distinctive environment for independent gas suppliers, particularly Novatek and Rosneft, whose success hinges on special operating conditions within the domestic market that allow them to survive in a low-margin context.

Gazprom's significant role in the industry, coupled with its reduction of European exports, underscores the complexity of the challenges faced. It is clear that the industry is undergoing a substantial transformation, with the pivotal element of profit from European exports through established infrastructure diminishing. Since 2022, the tax burden has intensified, plunging the profits of the gas industry into negative territory by 2023 (Kulagin et al. 2023).

The current scenario poses risks not only to the gas sector, but also to the broader Russian economy, given Gazprom's role as a major taxpayer and contributor to both society and the economy.

Pipeline Exports: Finding A New Balance Between East and West

Pipelines have traditionally been the core means of transporting Russian gas exports, but this situation is changing. One of the main features of the past two years has been the striking scale of pipeline capacity reductions. At the end of 2021, Russia had nearly 200 bcm of technical capacity heading to Europe; as of the end of 2023, this stood at just over 50 bcm and was comprised primarily of pipelines to Turkey (Kislov 2023).[1]

For decades, *Europe* has been the primary destination for Russian gas exports, but recent developments have introduced uncertainties into this longstanding relationship.

The *Nord Stream* pipeline system, a lifeline for Russian gas exports to northern Europe, faced a severe setback in 2022. The destruction of three of its four strings casts doubt on the feasibility of repair and highlights the vulnerability of this crucial export route. The existing potential technical capacity through the remaining Nord Stream 2 line is estimated at 27.5 bcm. Nonetheless, as Nord Stream 2 is yet to complete certification, it is unlikely—factoring in legal considerations—that the pipeline will be used (Kislov 2023, p. 20).

Yamal–Europe is under Russian sanctions but remains technically available and can be relaunched the day the sanctions are lifted, providing potential for Russian exports to Europe.

The *Ukrainian transit corridor*, historically vital for Russian gas exports, is still used for transporting Russian

1 Technical capacity in 2021 includes TurkStream (31.5 bcma), Blue Stream (16 bcma), Nord Stream (55 bcma), Nord Stream 2 (55 bcma), Yamal–Europe (32 bcma), and a pipeline to Finland (6 bcma). The remaining available capacity in 2023 is TurkStream (31.5 bcma), Blue Stream (16 bcma), and the pipeline to Finland (6 bcma).

gas to Europe, albeit on a substantially smaller scale. The Ukraine route is contending with challenges on multiple fronts. Vulnerable due to both military actions and legal disputes, the future of this option remains uncertain. The fact that the existing transit contract is set to expire in 2024 (Elliott 2023) adds another layer of complexity.

TurkStream, which is operational and a key route to Turkey, is already functioning close to its maximum capacity. Turkey is a stop on the way for Russian supplies headed to Europe that bypass the territory of Ukraine. The total capacity of Russian pipelines to Turkey amounts to nearly 50 bcm. TurkStream remains the only route to Europe still in service apart from that through Ukraine (Kislov 2023).

Russia's strategic pivot to the East has birthed robust export options to *China*, although these are not without challenges:

The *Power of Siberia* pipeline, designed to channel Russian gas to China, boasts a substantial capacity of 38 bcm. It is currently at 22 bcm (Izvestiia 2023).

The *Far Eastern Route*, aimed at enhancing gas export capacity to China by an additional 10 bcm, has encountered sluggish progress, raising questions about its feasibility and the challenges hindering its realization. The primary challenge is the resource base: the equipment for offshore Sakhalin fields is manufactured by Western companies and is now under sanctions. This poses risks to the commencement and achievement of planned production volumes at the South Kirinskoye field (Semikashev and Gaivoronskaia 2023).

The *Mongolia transit route* (also referred to as Power of Siberia-2 or Soyuz Vostok) has a potential capacity of 50 bcm. This project has failed to make substantial progress, raising questions about the feasibility and challenges associated with this endeavor (Mitrova 2023a). However, the project is still high on Gazprom's agenda. While a long-term offtake agreement is pending, the project is not frozen. If operational, the pipeline could reduce China's LNG demand, freeing up these LNG volumes for other importers (Kislov 2023).

Russia's engagements with *former Soviet states* in the energy sector present a complex landscape of cooperation and challenges.

Trilateral Gas Union Ru–Kaz–Uz: Within this trilateral gas union, Uzbekistan's domestic gas deficit and contractual obligations to China have led to a delicate balancing act. Uzbekistan agreed to accept 2.8 bcm of Russian gas from October 2023 (Interfax 2023b). According to the Ministry of Energy, the "roadmap" includes the construction of new gas metering stations in Uzbekistan for gas supplies in reverse mode transit through Kazakhstan via the Central Asia–Center gas pipeline.

Azerbaijan: While Russia signed a gas supply contract with Azerbaijan in November 2022 for 1 bcm annually on top of the 2021 deal for seasonal cooperation in alternating supplies (Interfax 2022), EU concerns led to the non-extension of the deal in 2023 (Mitrova 2023a, p. 10). This episode reflects the geopolitical complexities surrounding Russian gas exports and the influence of external actors.

There are two major takeaways from this analysis of Russia's pipeline gas export options. First, Russia seems to be on the way to rebalancing its East–West supply structure, with those two directions now playing a comparable role in the structure of pipeline exports (Mitrova 2023b). Second, the planned pipeline projects scheduled until 2030 will not be able to fully compensate for the existing decline in export volumes.

LNG Exports: Maintaining Their Historically High Levels

LNG capacity additions have not been taking place, but against the backdrop of pipeline exports reductions, LNG has transformed into a significant means of gas exports from Russia. Moving forward, LNG exports will continue to grow in line with Russian advances in developing liquefaction technology. While Russian LNG exports have not suffered from Western sanctions and this part of the Russian gas industry continues to perform at a historically high level, the development of new projects faces complications. Sanctions restricting technology transfer to Russia pose a challenge to the expansion of LNG projects that could potentially offset losses along traditional export routes.

Russian LNG represented a large share of the Russian gas available in Europe in 2022–2023, and some countries significantly increased the share of Russian LNG in their overall gas consumption in 2022 (Kislov 2023). Moreover, Russian LNG is becoming more dominant than pipeline gas in gas exports to the West (Mitrova 2023b).

Upon attaining technological self-reliance in the LNG sector, Russian firms can return gas reserves initially earmarked for pipeline exports to Europe, and currently stranded in Western Siberia, to the market in the form of LNG (Kislov 2023). This has the potential to enable Russia to regain its leading position in the international natural gas market.

Conclusions

Pipelines have traditionally been the main means of exporting Russian gas. One of the key features of the past two years has been the striking scale of reductions in both pipeline export capacity and total export volumes.

The model that existed in the Russian gas industry can no longer function as reliably as before. Cross-subsidization of domestic supplies through revenues from European exports has ceased to be part of Russia's gas

equation. Even with the resumption of exports through some of the remaining pipelines, it would not be possible to achieve the previous volumes.

Furthermore, Gazprom is no longer the dominant player in the Russian gas market that it was a decade ago. Novatek and Rosneft are now making a significant contribution to gas production and deliveries, and they currently bear a lower tax burden.

These developments are occurring in parallel with a rebalancing of both the geography and the mode of gas exports from Russia. Russia appears to be on the way to rebalancing its East–West supply structure, with those two directions now playing comparable roles in the structure of pipeline exports. While the planned pipeline projects scheduled until 2030 will not be able to fully compensate for the declining export volumes, the LNG sector has the potential to return Russia to a leading position in the international natural gas market should the country achieve technological self-reliance.

This article was completed in December 2023.

About the Author

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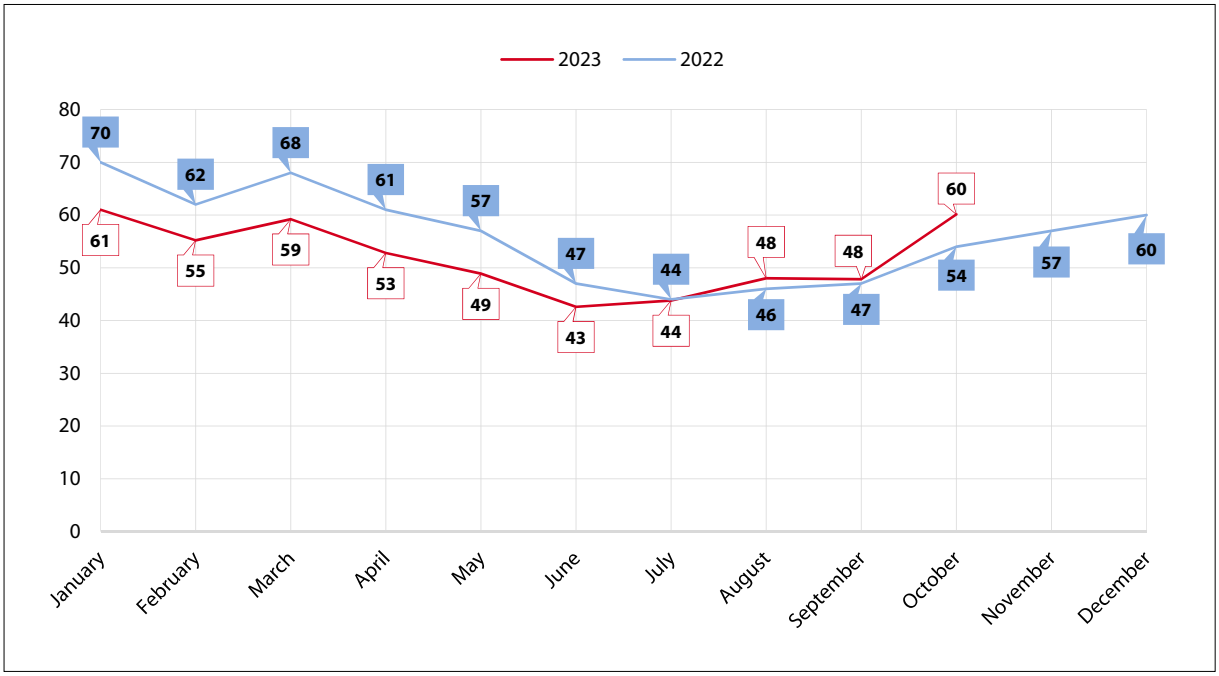
Annex 1: Graphs and Figures

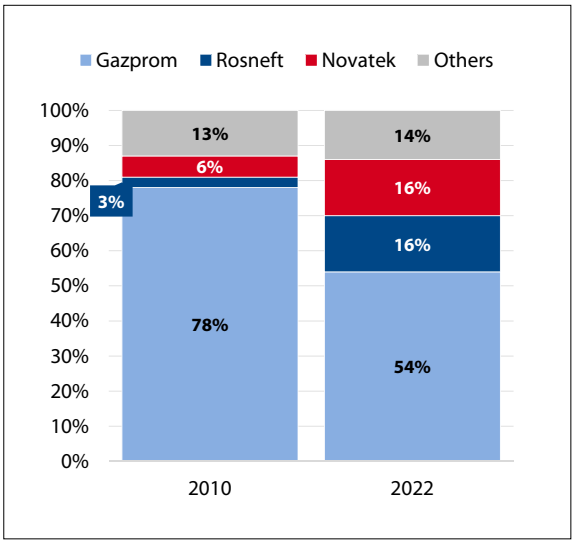
Figure 1: Natural Gas—Monthly Production in 2022 and 2023



Russian monthly gas production in 2023 is now exceeding its record-low 2022 level.

Sources: Vedomosti, Kommersant and OIES based on Rosstat (Dyatel and Kozlov 2023b, 2023a; Vedomosti 2023a; Yermakov 2023)

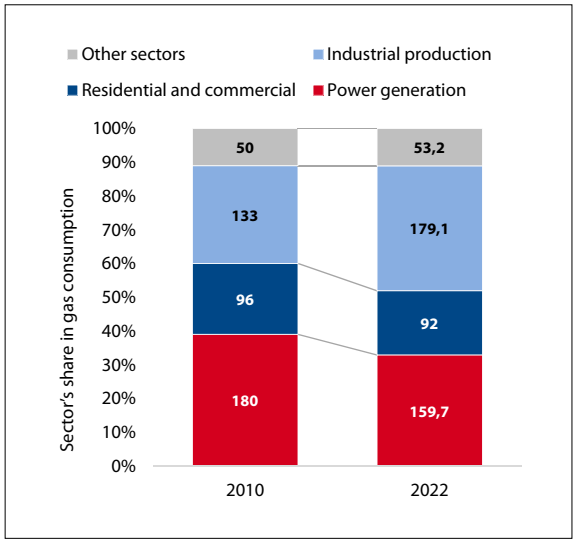
Figure 2: Structure of Gas Supplies to the Russian Domestic Market (Split Between Major Market Participants)



Russia's current natural gas market is no longer a monopoly, and is better characterized as an oligopoly with three dominant companies.

Source: ERIRAS (Kulagin 2024)

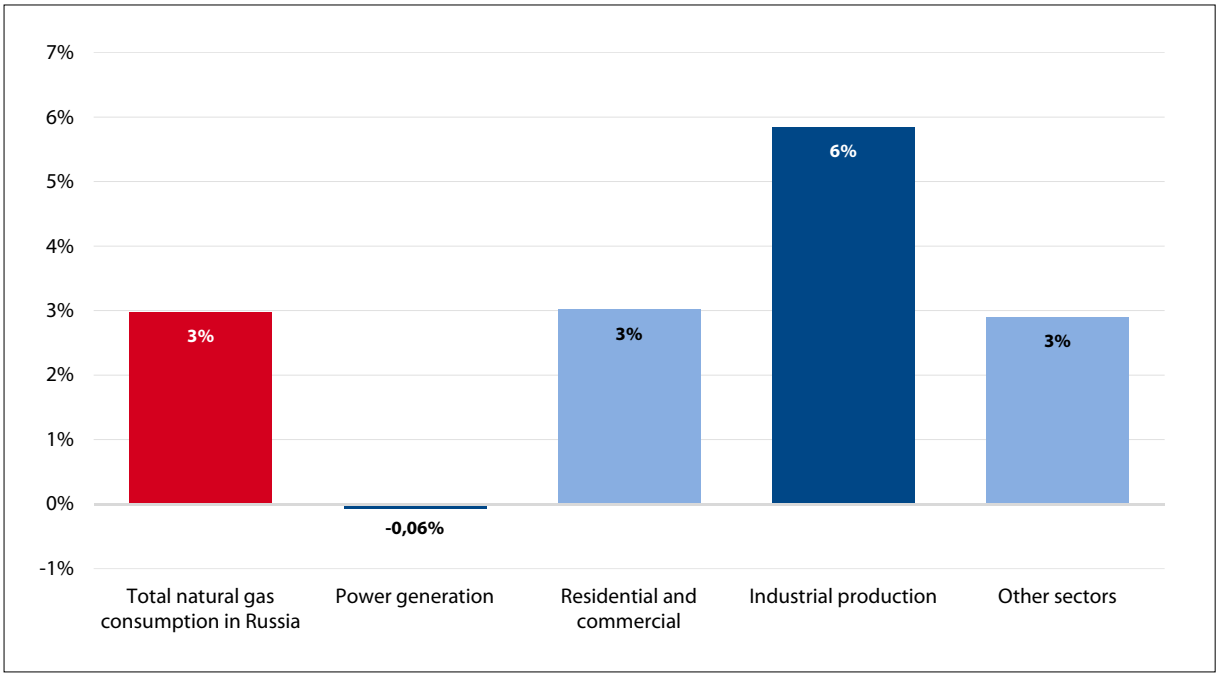
Figure 3: Structure of Natural Gas Consumption in Russia by Sector, 2010 and 2022, % and bcm



Traditionally, the power generation sector has been the main sector of natural gas consumption in Russia. However, demand from this sector hasn't fully recovered since the COVID-19-related decline, while industrial production has become the largest demand provider.

Source: Rosstat and Ministry of Energy (as quoted in Semikashev and Gaivoronskaia 2023)

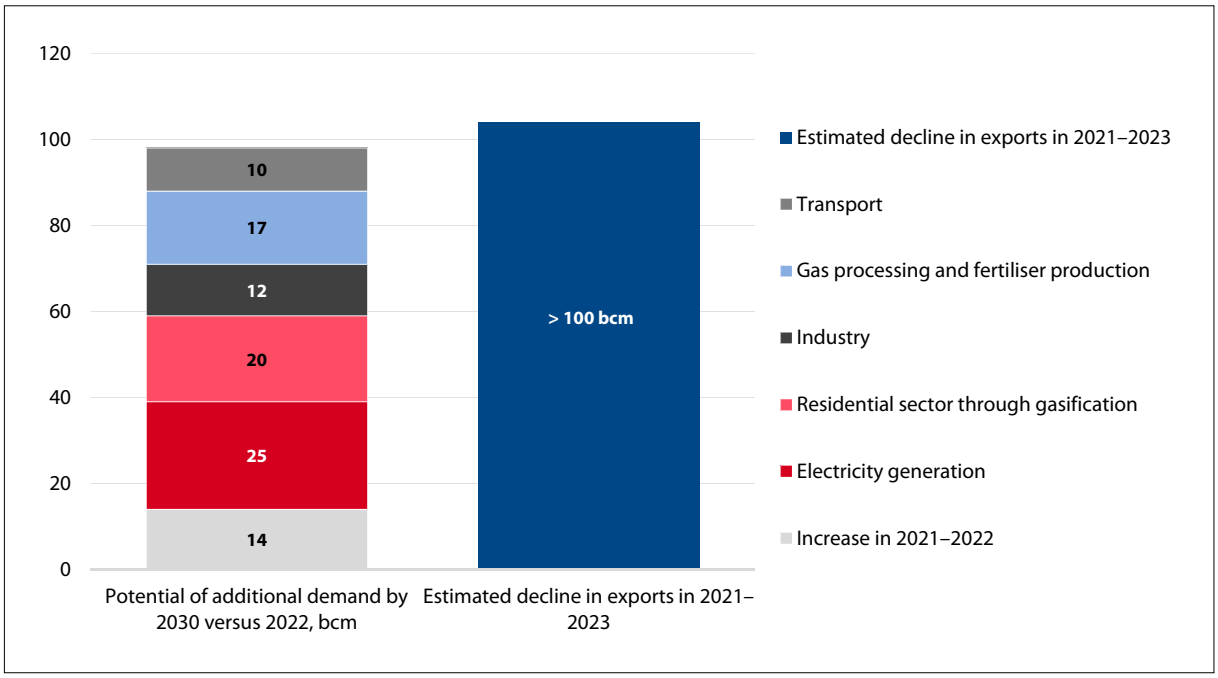
Figure 4: Year-over-Year Change in Natural Gas Consumption in 2021–2022



The industrial production sector demonstrated the most substantial growth in demand for natural gas in 2021–2022.

Source: Rosstat and Ministry of Energy (as quoted in Semikashev and Gaivoronskaia 2023)

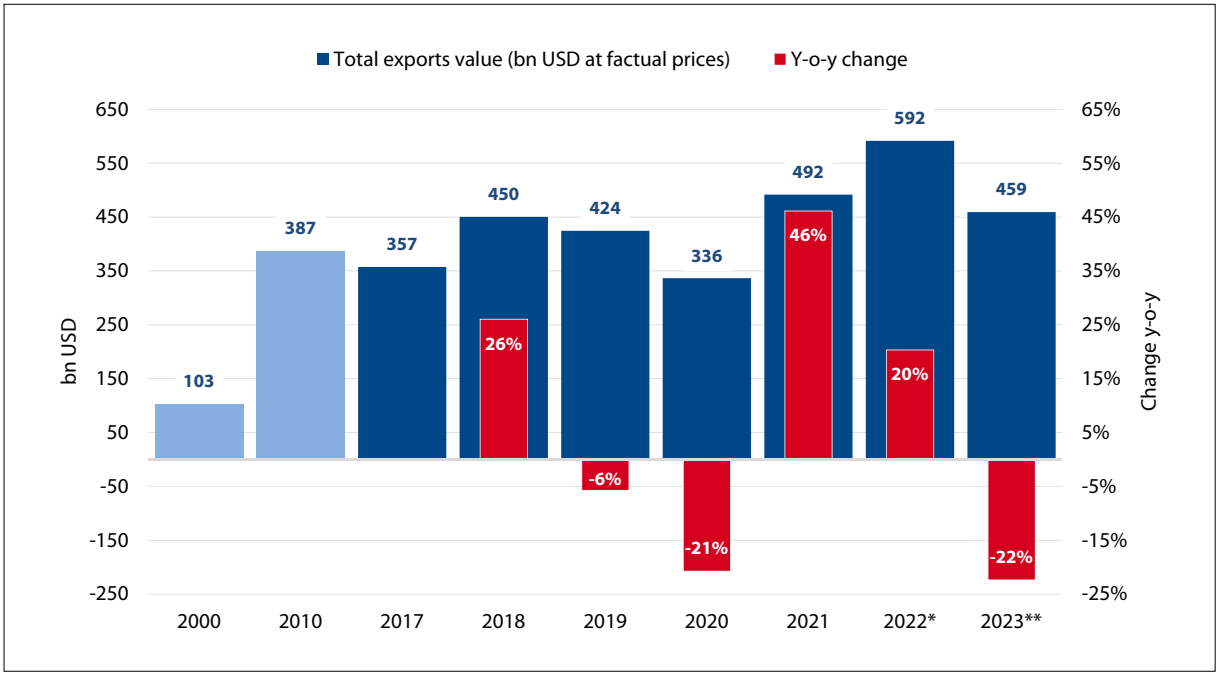
Figure 5: Possible Natural Gas Demand Additions in Domestic Market by 2030 Versus Export Losses in 2021–2023 (in bcm)



Even in the most optimistic scenario, domestic demand would not make up for the losses in exports witnessed in 2021–23 by 2030.

Source: Yakov and Partners demand growth estimates (as quoted in Smirnov 2023 and Tikhonov 2023)

Figure 6: Total Value of Russian Exports, 2000–2023, billion USD



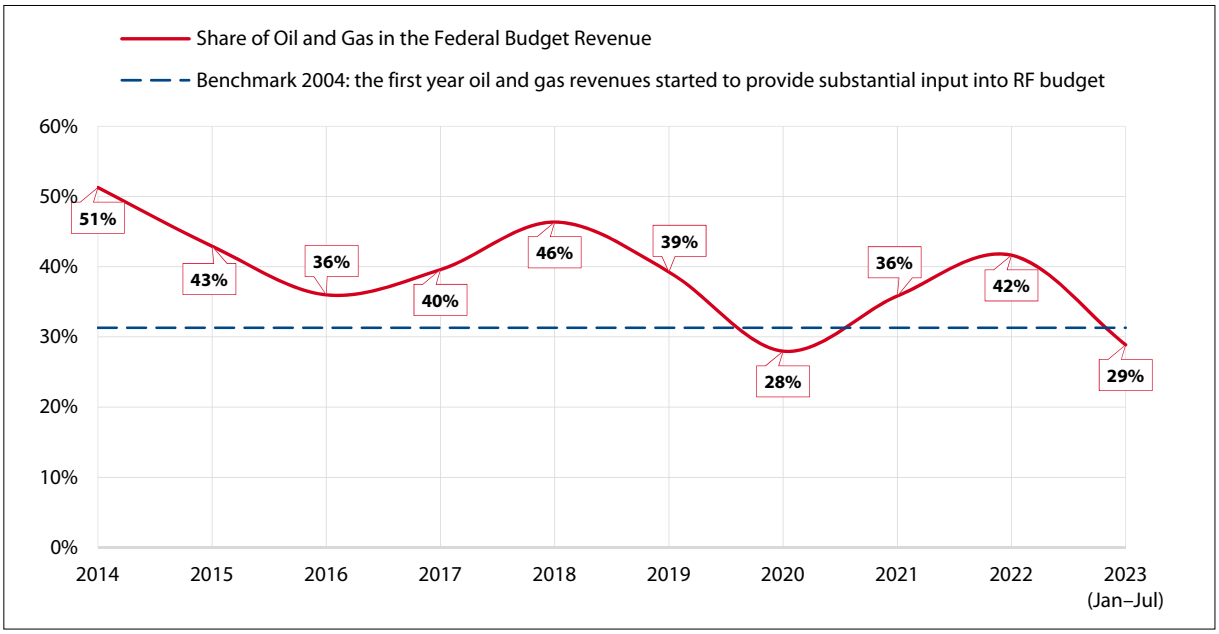
Decline in Russia's total exports value in 2023 is expected to be larger than in 2020 during the COVID-19 pandemic.

Sources: 2000–2021: Customs Service of the Russian Federation 2022a

** 2022: Russian Customs Service, quoted in Interfax 2023c*

*** 2023: Ministry of Economic Development Outlook (as quoted in Interfax 2023d)*

Figure 7: Oil and Gas as a Share of Russian Federal Budget Revenue



The share of oil and gas revenue in the Russian federal budget in 2023 is at a 20-year low, demonstrating a similar dynamic as during the COVID-19 pandemic in 2020. The difference between 2020 and 2023 is the persistence of the underlying factors.

Sources: 2014–2022: federal budget execution reports (Ministry of Finance of the Russian Federation 2023a, 2023b, 2023c); 2023: preliminary assessment (Ministry of Finance of the Russian Federation 2023d)

Annex 2: Sources of Data

Since early 2022, it has become significantly more challenging to access information on the operation of Russia's fuel and energy complex. The Russian government has gradually reduced the volume of publicly available data. The main sources of data on the Russian energy sector and an assessment of their accessibility as of 2023 is below.

Rosstat (Russian Federal State Statistics Service)

The most recent data from the *Statistical Yearbook* (Federal State Statistics Service 2022) come from 2021. For the fuel and energy complex and the gas industry analysis, indicators include extraction of minerals, final energy consumption by fuel type, electricity generation and capacity balance, pipeline transportation, export structure by individual products, and investments. The publication of external trade data has been suspended until further notice. As of 2023, no yearbook with 2022 data has been released.

Federal Customs Service

The annual publication for the year 2022 (Customs Service of the Russian Federation 2022b) is available and includes statistics on foreign trade and budget revenues from exports. Data on the structure of foreign trade is available on the Federal Customs website (Customs Service of the Russian Federation 2022a), with the most recent data being from January 2022. Aggregate export volumes for 2022 were sourced from media publications quoting the Federal Customs Service.

Ministry of Finance of the Russian Federation

Monthly information on the execution of the federal budget is available for the first 9 months of 2023 (Ministry of Finance of the Russian Federation 2023b, 2023c). The information on oil and gas revenues (Ministry of Finance of the Russian Federation 2023e) includes details on the formation and use of additional oil and gas revenues in the federal budget from 2018 to 2023.

Corporate Data

Gazprom's data book provides reports for 2018–2022 (PJSC Gazprom 2023b). These reports are typically released after the end of the calendar year, so data for 2023 are currently unavailable. Another source of information, albeit with less details than before, is the Annual Report (PJSC Gazprom 2023c).

The latest data in Novatek's Financial and Operational Data Book come from 2021 (PJSC Novatek 2022). Some data is available from the 2022 annual report (PJSC Novatek 2023b).

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ANALYSIS

The EU's Decoupling from Russian Gas: What's the "New Normal" and How Sustainable Is It?

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Abstract

After the Russian invasion of Ukraine, the EU focused on diversifying away from Russian energy supplies. Getting rid of Russian natural gas, which had dominated EU markets, became one of the priorities, and, as a result, the EU's imports now look markedly different. However, a careful assessment of the stability and security of the new supply portfolio is necessary.

The Russian invasion of Ukraine in February 2022 set in motion a chain of events that have dramatically reshaped the transatlantic security landscape, with the changes in the EU's energy landscape being among the most profound. However, these changes came as no surprise, given Russia's role in meeting Europe's energy needs and how the Kremlin manipulated energy supplies to reach its foreign policy goals. In 2021–2023, Russia used natural gas supplies to put pressure on the EU and dissuade it from helping Ukraine, providing evidence that the Kremlin uses energy contracts as foreign policy tools. The choice of natural gas was understandable from the Kremlin's perspective, as most EU-bound supplies were delivered via pipelines, making it harder to react in the event that the flow was interrupted.

This text's focus is twofold: It looks at the EU's reaction to the energy crisis and the subsequent decoupling from Russian supplies. It first analyzes the concrete steps taken to address the supply issues and their impact, then assesses whether the EU's energy security has improved as a result and whether the EU will survive without Russian gas. The text uses the basic definition of energy security provided by the International Energy Agency, namely "reliable, affordable access to energy sources," to gauge the change in Europe's energy security since implementing the measures under study.

Prelude

Prior to the war, Russia provided around 40% of the natural gas consumed by the European Union (EU), delivering around 140 billion cubic meters per year (bcm/y) in 2021. The country even served as a swing supplier, able to provide extra volumes at the expense of other actors (European Council 2023) (International Energy Agency 2022). Even though the volume delivered immediately before the war was lower than it had been in previous years, Russian production still represented a significant share of the EU's energy portfolio. On top of that, until the war, it seemed plausible to assume that the Nord Stream 2 pipeline would soon come into operation, effectively cementing the supply relationship between the EU and Russia. Together, the two strands of the Nord Stream pipeline system were expected to deliver over 100 bcm/y, effectively diverting most of the Russian supplies away from the original pipeline system in eastern Europe and diminishing the transit role of the Central and Eastern European (CEE) countries. This scenario posed a political threat mainly to Ukraine, which feared its importance to the EU would diminish once Nord Stream came online, effectively limiting the EU's support for Ukraine in the event that the latter was attacked.

From the second quarter of 2021, it was also apparent that something was not quite right with EU gas storage. Unlike in previous years, in 2021 Gazprom did not start refilling European stores after the previous heating season, thus startling the market. The limited availability of stored gas and the heightened need for a substitute for the French nuclear reactors undergoing maintenance increased the market price for gas, dragging the electricity price up along with it.

After Russia attacked Ukraine on the cold morning of February 24, 2022, concerns over Europe's ability to withstand the winter mounted. Luckily for the EU, neither the tail end of the 2021/2022 winter nor the next one turned out to be harsh, enabling the Union to survive the first year of the war relatively unscathed. Indeed, contrary to the predictions of most headlines, there was no energy crisis as such, as the EU was not suffering from an immediate gas shortage. The only real impact of the crisis was financial—that is, a price hike. As the months following the Russian invasion unfolded, it became apparent that business as usual was no longer possible, with the result that the EU states began to look for alternatives. Their goal was to secure supplies that would be sufficient, stable, and affordable. Natural gas remains a critical commodity, and EU members have made it clear that they are willing to swallow the extra costs to keep the gas flowing from elsewhere. Both in the immediate aftermath of the invasion and in the months that followed, they focused primarily on secur-

ing enough gas for the coming weeks and months and secondarily on replacing Russian supplies long-term.

The New Normal

The EU's gas supply portfolio is now markedly different than it was at the beginning of 2022. The share of gas coming from Russia fell from 40% in January 2022 to under 15% at the end of 2023 (European Council 2023) (Zachmann, Sgaravatti, & McWilliams 2023). This significant decline is the result of both emergency reactions and a profound policy change. The first category encompasses reductions in demand in response to the threat of supply curtailment. A year-over-year comparison of the fall of 2022 and the fall of 2023 suggests that together, the EU and the UK reduced gas consumption by 13%, or 61 bcm (Honoré 2023, p. 3). Even more remarkably, this reduction in EU demand has not only been maintained in 2023, but has even deepened: demand is down 22% in 2023 compared to the pre-crisis average (2019–2021) (Zachmann & McWilliams 2023).

Although Russian natural gas has not been sanctioned (unlike oil), imports have slumped. The decline in Russian supplies took place at the expense of pipeline supplies. Of the main Russian transit routes to the EU, only one strand of TurkStream remained fully utilized in 2022–2023 (European Network of Transmission System Operators for Gas; Zachmann, Sgaravatti, & McWilliams 2023). Other supply lines have been either put out of service (Nord Stream I and II), shut down (Yamal), or underutilized (Ukrainian transit) (ibid.). Meanwhile, Russia-sourced liquefied natural gas (LNG) increased by a staggering 40% year-over-year (European Commission: DG Energy 2023, p. 10; Zachmann, Sgaravatti, & McWilliams 2023). In terms of volume, however, Russian LNG went from 14 to roughly 25 bcm/y, thus constituting only around 7% of the EU's annual consumption (ibid.). In comparison, other suppliers went up in both share and volume. The most notable additions include LNG supplies from the US, which more than doubled to 50 bcm/y (European Commission: DG Energy 2022a; U.S. Energy Information Administration 2023). In fact, LNG supplies represented the most significant relative gains in the import portfolio. LNG supplies now match, or even surpass, major pipeline suppliers like Norway or Algeria.

Such a change in supplies also affected market concentration (i.e., the number of actors in the market), as Russia was replaced by other suppliers who increased their share. The EU's import portfolio now sees import volumes more evenly distributed among suppliers. The key players are the United States, Norway, and various LNG suppliers. Indeed, the continent even experienced an LNG glut in Q1 and Q2 of 2023 as a result of lower-than-expected demand in China. Although this glut eased later in 2023, there is no reason to believe the EU's import structure will return to its pre-war state. As the EU members have bet heavily on new LNG infrastructure and sealed contracts with new suppliers, Russia is unlikely ever to return to a supply position even remotely resembling the one it held pre-war. Even though the supply portfolio remains dominated by several major suppliers, these suppliers do not pose an immediate geopolitical risk. Hence, it can be argued that the changes to the EU's gas supply portfolio have increased its energy security.

When looking at supply security, this "new normal" therefore represents an improvement compared to the pre-war situation. In terms of stability, however, the outlook is less clear. The question is whether the new portfolio, which largely excludes Russia, can be maintained—in other words, whether there will be enough supplies. In the third decade of the 21st century, it is also legitimate to ask what demand will look like, given the energy transition and decarbonization policies.

Supplier stability really depends on where we look. Norway, the EU's biggest supplier post-2022, produces natural gas in mostly mature fields; the country is close to its production capacity, with unclear potential for expansion of future production. High labor costs and increased environmental measures could cause some mature, less profitable, or smaller fields to shut down (BMI: Fitch Solutions 2023a, pp. 6–7). Meanwhile, exploratory activities in the Arctic have been rather underwhelming. Although Norway's reserves are far from depletion at this point, the cost of production, as well as environmental and other restrictive measures, might impede Norwegian output in the long term (ibid.). Given the abovementioned factors, Norway's gas output is expected to be flat in the coming years. Nevertheless, Norway is expected to remain a significant supplier to the EU, and although it is unable to replace Russian gas entirely, its greater relative role post-2022 has increased the Union's energy security.

The other supplier that has most benefitted from Russia's departure from the European energy scene is the US, which has increased its supplies—understandably—in the form of LNG. Per the agreement signed by U.S. President Joe Biden and European Commission President Ursula von der Leyen in spring 2022, U.S. supplies should reach 50 bcm/y and stay there until 2030. This volume comprises approximately one-seventh of the EU's current natural gas demand (European Commission 2022b). However, the aforementioned document was a mere memorandum, which, by definition, means that the stated volumes are not guaranteed. Although U.S. natural gas production has been growing steadily in recent years, other trends also need to be considered. There is no comprehensive federal energy policy and no national champion that could guarantee delivery on the promise. Therefore, the achievement of this goal hinges

on favorable internal conditions in the US, private-owned companies' production, and their ability to seal deals with European counterparts. The first two features depend heavily on U.S. domestic environmental policies and regulations, as stricter restrictions on greenhouse gas emissions (mainly methane) will affect U.S. natural gas production (BMI: Fitch Solutions 2023b, pp. 71–78).

The stability of other producers is more challenging to predict. Azerbaijan signed a memorandum on doubling its supplies to the EU in July 2022. However, the actual figures are far from overwhelming. The doubling would mean an eventual increase from the current 10 bcm/y to 20 bcm/y, which is hardly a game-changer (Euro News, 2022). Furthermore, efforts to expand Azerbaijani gas supplies have faced issues and delays in the past, raising further questions about their potential impact (Agayev & Shiriyaevskaya 2023) (BMI: Fitch Solutions 2023c, pp. 29–30). Moreover, EU members are far from keen to seal deals that would require new infrastructure and potentially lock them into long-term contracts. Thus, although Azerbaijan is a noteworthy gas exporter, the potential additions will increase the bloc's energy security only marginally, and mainly in its southern part. It is also possible that the bulk of additional future supplies from Azerbaijan will end up in Turkey, whose natural gas market has grown significantly in the past two decades (International Energy Agency n.d.).

Algeria, for its part, is a significant, established actor, exporting just under 50 bcm/y, the majority of which is destined for Europe (S & P Global 2023). However, the potential to upscale production is hindered by several internal issues, from administrative to logistical and political. As a result, the interest of foreign investors, who are crucial for the sector's development, has been limited thus far. On the other hand, the uptick in EU demand for non-Russian gas, Algeria's position close to EU shores, and its infrastructural interconnectedness put it in a solid position. Specifically, the Transmed pipeline, connecting Algeria with Italy, still has spare capacity of about 10 bcm/y (ibid.). Gas production growth is estimated at 4–5 bcm/y of additional production in the short- to mid-term, after which a plateau or decline is expected. Therefore, although Algeria's supplies will remain important, any potential increase in production would be rather marginal, and thus so would its impact on the EU's energy security.

Addressing potential new dependencies has become another concern for the EU. After decades of relying on the market while essentially disregarding the origin of natural gas, the EU learned the hard way that origin does matter, and that natural gas can well be used as a political tool. It is thus paramount to consider whether new or upscaled supply deals may bear political risks of their own. An often-cited actor in this regard is Qatar, which has proven willing to go the distance to clinch significant deals with European customers. The EU is a well-paying market, attractive to suppliers willing to fill the supply gap left by Russia. Also, since the EU has declared the goal of getting rid of fossil fuels, suppliers are trying to clinch long-term deals. This is also true of LNG, which is going to play an increasingly important role in the EU's import mix. Among the group of LNG suppliers, Qatar has clearly shown a strong preference for long-term contracts (Reuters 2023). Even though the LNG market has always been marked by considerable flexibility, especially compared to pipeline trading, the preference for long-term contracts is gaining traction. This should come as little surprise. Decarbonization will eventually bring an end to fossil fuels, with the result that fossil fuel suppliers will lose their source of income. By mid-century, demand in developed countries will likely be well in decline compared to the current situation. Suppliers are therefore trying to make the most of the time that is left for fossil fuels by inking long-term contracts even for LNG.

Despite a backlash against the expansion of trade with non-democratic regimes, it would be wrong to liken the potential risks to those attached to trade with contemporary Russia. Looking at how the EU's supply portfolio has developed since Russia's departure, we do not see an equally problematic supplier. Even authoritarian regimes such as Azerbaijan or Qatar are far from constituting a political risk similar to that posed by Russia. These countries do not have geopolitical aspirations equal to those of Russia, nor do they have the military might to endanger Europe, the EU, its parts, or its neighborhood. Hence, even replacing Russian natural gas with these suppliers does not worsen the security situation.

More Fragmented but Safer Import Portfolio

The EU has survived the most critical period following the Russian invasion of Ukraine thanks to demand reduction and prompt supply reorientation—with significant help from a mild winter. In that time, the EU's gas import structure has undergone a significant overhaul, with non-Russian suppliers taking over much of the former Russian supply position. As a result, the supplied volumes are now split more evenly between suppliers, as the role of the previously dominant swing supplier has been reduced. Some of the formerly second-tier suppliers now play a key role, but overall, the EU's supply security has improved as a result of this less concentrated import portfolio. Furthermore, although some of the suppliers could be perceived as politically problematic, none have the aspirations or the means to endanger EU member-states in a similar way to Russia.

Please see overleaf for Information about the Author and References.

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ABOUT THE RUSSIAN ANALYTICAL DIGEST

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