UDC: 327.8:622.276
DOI: 10.59214/ua.fa/2.2026.102

ISSN: 2663-2675
E-ISSN: 2663-2683

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The collapse of the Russian energy model and the reorientation of exports to Asian markets

Abstract. The relevance of the study is determined by the need for a comprehensive understanding of the consequences of the reorientation of Russian energy exports to Asia under the pressure of sanctions amid the transformation of global energy markets. The aim of the study was to identify the extent of compensatory potential of the Asian vector of Russian energy exports in relation to the loss of European premium markets and the long-term geo-economic risks for Russia. The methodological basis of the study was based on an interdisciplinary analytical approach that combined methods of structural-institutional and comparative analysis, as well as the application of SWOT analysis. As a result, it was found that Asian markets provided only partial compensation for physical export volumes, but did not restore the level of budget revenues characteristic of the European direction. It was found that the established system of Asian reorientation was accompanied by a persistent discount to global benchmarks, which undermined the profitability of Russian supplies. It was found that China and India occupied dominant negotiating positions, using monopsony mechanisms of pricing and political control over import volumes. It was proven that logistical and infrastructural constraints, in particular the lack of storage and regasification capacity for liquefied natural gas and dependence on the "shadow fleet", reduce the effectiveness of adaptation. It has also been established that structural changes in exports have created a new configuration of long-term risks for the Russian Federation related to technological vulnerability, transport barriers and the instability of Asian demand. It was concluded that the Asian reorientation did not provide strategic compensation for the loss of European markets and led to increased economic and political dependence on a limited circle of importers. The practical significance of the study lies in its potential use for assessing the sustainability of trade strategies under sanctions and for forecasting long-term energy policy risks at the global level

Keywords: monopsony; discount; asymmetry; logistics; sanctions

Introduction

The transformation of global energy flows after 2022 has become one of the key processes determining the parameters of international economic security and the structure of geo-economic interdependence. The sharp reorientation of Russian oil and gas exports has changed the configuration of markets, pricing logic and the mechanisms of influence of leading importers. In these conditions, energy policy has begun to increasingly combine economic and geopolitical dimensions, and the issue of access to resources has become a tool for forming new negotiating asymmetries. The Russian Federation's loss of the European premium market triggered a large-scale reconfiguration of transport routes, contract models and financial flows, which required a new analytical view of the sustainability of its export model. As emphasised by I. Yakoviyk & M. Tsvelikh (2023), Russian aggression against Ukraine and Moscow's use of energy resources as a tool of political pressure caused a large-scale energy crisis in the European Union (EU). The authors showed that demands for payment for gas in roubles, the suspension of supplies to individual member states, manipulation of transit volumes and provocation of price spikes demonstrated the vulnerability of the previous model of energy interdependence. In this context, according to the researchers, the structural break in relations with the Russian Federation has become a catalyst for the formation of a new EU energy security architecture focused on strengthening supply security and accelerating the green transition, rather than replicating the model of long-term dependence on Russian energy sources. The study by O. Semenenko *et al*. (2024) emphasised that sanctions pressure and changes in global energy markets have transformed countries' approaches to energy security. The authors stressed that sanctions did not so much create "shadow" logistics as force countries to adapt

Received: 16.11.2025, Revised: 24.03.2026, Accepted: 20.04.2026, Published: 01.05.2026

Suggested Citation:

Korchak, N. (2026). The collapse of the Russian energy model and the reorientation of exports to Asian markets. *Foreign Affairs*, 36(2), 102-115. doi: 10.59214/ua.fa/2.2026.102.

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their energy strategies. It has been proven that sanctions have become a factor in the reformatting of global energy flows, causing prices to rise and placing new demands on the energy sustainability of import-dependent states. The success of adaptation was determined by the ability of governments to effectively manage resources, diversify risks and expand international partnerships.

A comprehensive analysis of how sanctions imposed by individual states and international institutions affected the Russian oil sector in 2022-2023 was presented in a study by N. Hlynsky *et al*. (2023). The authors emphasised that structural sanctions, despite the impossibility of completely excluding the Russia from the globalised oil market, systematically limited its ability to generate excess profits from exports and gradually reduced the fiscal efficiency of the oil sector. The study by O. Sokhatskyi (2025) emphasised that sanctions pressure in a multipolar environment generated complex and sometimes paradoxical economic consequences that went beyond the original political goals. O. Sokhatskyi showed that large-scale restrictions against the Russian Federation created strategic uncertainty at the global level, stimulated the formation of alternative economic blocs, the reorientation of trade flows, and the search for new financial instruments. In their study, K. Kucherenko & P. Horbik (2025) further explored the topic of the impact of sanctions through an analysis of the legal mechanisms and regulatory procedures that determined the use of sanctions as a foreign policy tool. The authors emphasised that the regulatory framework was a key factor in the effectiveness of sanctions regimes, as it determined the ability of states to control trade flows, restrict access to financial resources and shape the conditions for international accountability. It was found that in the context of contemporary geopolitical challenges, sanctions function as an institutional mechanism that reorients the structure of global trade interactions and sets new boundaries for the behaviour of states in the international arena. S. Fedunyak's (2022) analysis showed that the full-scale Russian-Ukrainian war became a catalyst for the destruction of the weak post-bipolar model of international relations and the transition to a new configuration of forces, in which the nature of interaction between the leading centres of influence is changing. Against the backdrop of growing heterogeneity in the international system and increasing ideological polarisation, economic and diplomatic ties are being reformatted, which directly affects the geo-economic position of the Russian Federation. In this context, the loss of the European market is not only an economic phenomenon, but also part of broader structural shifts caused by a change in the balance of power, the regrouping of actors, and a rethinking of their role in the global environment. The article by S. Kohut (2023) emphasises the need to clearly define energy security as a component of economic and national stability, as well as the need to systematise its key characteristics in the context of global energy shifts. The author analysed the dynamics of the transition to renewable energy sources, the structure of global energy consumption and the transformation of the fossil fuel market, including coal, and identified imbalances in the sanctions policy towards the Russian Federation, where the gas sector was under the most pressure, while the coal and oil sectors remained less affected.

Despite the existing body of research, most researchers have analysed either individual elements of sanctions adaptation or the specifics of Asian demand, leaving the interrelationship between the financial, logistical and negotiating resilience of the Russian export model without comprehensive consideration. The question of whether the Asian vector is capable of providing long-term compensation for losses in the European market, given the asymmetry of negotiating positions and the growing role of large importers, remains insufficiently researched. The interaction of the "shadow fleet" with the pricing structure and risks formed in regional discount hubs has also been studied to a limited extent. The aim of this study was to analyse the transformation of the Russian export model after 2022 and to assess how the change in the geography of supplies has affected the financial, logistical and negotiating stability of the Russian energy sector under sanctions restrictions. The research objectives included: identifying key mechanisms of sanctions adaptation; assessing the role of China and India in shaping the new demand structure; conducting a SWOT analysis to systematically identify internal and external factors that influenced the functioning and transformation of the Russian energy model.

Materials and Methods

The study employed an interdisciplinary approach combining elements of energy economics, international relations, and institutional analysis. The analytical period covered 2014-2025, which made it possible to track the evolution of the Russian export model from the beginning of the annexation of Crimea to the large-scale restructuring of energy flows as a result of the full-scale invasion of 2022. The choice of the EU, China and India for the analytical cases was determined by their different roles in the global energy architecture and their different mechanisms of influence on the conditions of the Russian energy sector after 2022. This combination of macro-level (EU) and regional-sectoral (Asia) analysis made it possible to trace the transformation of the Russian export model in its financial, logistical and negotiating dimensions. China and India are critical to assessing the sustainability of the Russian export model, as they have provided the bulk of the reorientation of supplies, formed a new negotiating asymmetry and defined the contours of the Asian price corridor.

The study was conducted in three stages. The first stage involved systematising the basic structural trends in the Russian oil and gas sector based on materials from the International Energy Agency, including Energy fact sheet… (2022), Gas market report… (2024), India oil market report… (2024). These sources served as reference data on global energy trends, demand in China and India, and changes in logistics routes that form the framework constraints for the Russian export model. At this stage, a structural and institutional analysis of EU regulatory documents was also applied, in particular Directive 2009/72/EC (2009) and Sanctions on energy (2025). The systematisation of these materials made it possible to clarify the political and regulatory parameters of Europe's energy "divorce" from Russia and to assess the institutional prerequisites for a change in market balance in 2022-2024.

The second stage included a comparative analysis of Russia's oil and gas export strategy towards Asia. The

focus was on industry monitoring studies, including B. Dodonov *et al*. (2023), One year of sanctions… (2025), as well as specialised reports on the functioning of the "shadow" fleet, in particular I. Levi *et al*. (2023). The sources used were employed to reconstruct the actual structure of Russian exports, determine the scale of discounts, changes in maritime transport routes, and assess the growth in the share of risky logistics. A comparative analysis was carried out based on four key parameters: the financial performance of export operations, which made it possible to establish the impact of discounting and logistics costs on budget stability; the logistics configuration of flows, which characterised the degree of dependence on the "shadow fleet" and alternative routes; infrastructure constraints related to pipeline capacity and the lack of diversified supply channels; and the demand structure of key importers, which made it possible to assess the changing bargaining power of China, India and other Asian countries. The application of these criteria made it possible to comprehensively assess the limits and potential of the Asian reorientation of Russian energy exports after 2022.

The third stage was devoted to a SWOT analysis, which assessed the strengths, weaknesses, opportunities and threats of the new export model. The analytical matrix was formed on the basis of all previously collected data, as well as the results of generalised studies and analytical reviews, in particular the works of B. McWilliams *et al*. (2022) and G. Zachmann *et al*. (2022). The SWOT analysis made it possible to comprehensively assess how the change in export geography affected the Russian Federation's bargaining power, the financial return of the energy sector, the depth of dependence on China and India, and the overall vulnerability of the model to foreign policy fluctuations. The comprehensive application of these methods made it possible to form a multi-level analytical reconstruction of Russia's energy reorientation, combining macro data, regulatory analysis, segment market observations, and risk assessment. This approach provided a comprehensive understanding of how sanctions pressure, logistical constraints, and shifting balances of power have shaped a new, asymmetrical configuration of Russian energy exports.

Results

The transformation of Euro-Russian interdependence through the collapse of the Russian energy model. Until 2022, the Russian energy model was an institutionally stable and economically profitable system that combined pipeline infrastructure, long-term contracts with European consumers, and the use of energy rents as a key element of domestic and foreign policy influence. It was pipeline connectivity that determined the specificity of Russian energy exports: unlike the global markets for oil and liquefied natural gas (LNG), pipelines created a high barrier to entry for competitors and formed a dependency between supplier and consumer that ensured stable revenues. The main gas routes to the EU, in particular the Ukrainian, Belarusian and Baltic-Northern corridors, functioned as constantly busy arteries that guaranteed Russia access to the largest and most profitable premium market. Long-term contracts concluded by Gazprom and European companies, such as Engie (an industrial company from France) or E.ON Ruhrgas (an industrial company from Germany), remained the central mechanism of this model (Judgment of the General Court…, 2012; Engie and Gazprom export…, 2016). They not only ensured the predictability of supplies, but also fixed pricing formulas, often linked to the oil basket, which allowed Russia to receive consistently high revenues even during periods of spot price fluctuations. These revenues formed the basis of energy rent, a systemic source of financing for the state budget, social programmes and the Kremlin's international activities, including investments in projects of influence outside the Russian Federation. Energy rent was thus integrated into the political economy of the state, strengthening the centralised nature of governance and enhancing the government's ability to maintain stability without implementing structural reforms.

Until 2022, Russian-European energy relations were traditionally viewed as an interdependence in which both sides benefited. The European Union provided its industry and households with relatively cheap gas and oil, while the Russian Federation had guaranteed access to a solvent and predictable market. However, this interdependence was asymmetrical: while the EU was able to gradually diversify its supplies, Russia remained infrastructure-bound to Europe and had no comparable alternative markets capable of providing similar revenues. European buyers could manoeuvre by increasing LNG imports or developing internal reverse capacities, while Russia found itself hostage to its own pipeline logic. The annexation of Crimea and the escalation of tensions between Russia and the EU intensified European energy diversification policy. The European Commission promoted the creation of an Energy Union (n.d.), the expansion of infrastructure for liquefied gas imports, the development of domestic interconnectors, and a reduction in the share of long-term contracts in the supply balance. These processes gradually limited Gazprom's monopoly position in the European market and undermined the preconditions on which the Russian model was based. At the same time, regulatory pressure, in particular the implementation of the Third Energy Package, reduced the Russian Federation's ability to influence the architecture of the European gas market (Directive 2009/72/EC, 2009). On the eve of 2022, persistent imbalances had accumulated in the Russian energy model. On the one hand, infrastructure and market logic continued to focus on the EU as the main consumer. On the other hand, Europe purposefully reduced its dependence on Russian gas and increased competition through LNG and alternative suppliers. Russia failed to create a comparable sales market in Asia, and existing eastern routes remained insufficient to compensate for the potential loss of the European market. Together, these factors created a structural vulnerability that became critical after Russia launched a full-scale invasion of Ukraine in 2022 and the EU introduced large-scale restrictions that destroyed the long-standing architecture of Euro-Russian energy interdependence. The European-oriented energy model has come under unprecedented pressure from sanctions. Among the key sanctions measures, the following are worth highlighting: a ban on imports of Russian crude oil and petroleum products by sea within the European Union (EU), the introduction of a price cap on Russian oil, and

a ban on the provision of insurance, financial and transport services for the transport of Russian oil by sea if it is sold above the set price cap. In particular, the EU Council's decision of December 2022 allowed an exception for maritime transport and related services only if Russian crude oil or petroleum products were sold at a price not exceeding the cap of USD 60 per barrel for crude oil. After further revisions (2025), the ceiling for crude oil was reduced to USD 47.6 per barrel (Sanctions on energy, 2025). These sanctions were accompanied by a mass exodus of Western energy, shipping and insurance companies from working with Russian counterparties, which created serious operational difficulties for traditional export routes. In November 2023, the share of cargo insured by P&I clubs (representing insurers from Western countries) was only 26% for crude oil and 57% for petroleum products; other deliveries were carried out through the "shadow fleet" (Dodonov *et al.*, 2023). According to One year of sanctions… (2025), in 2022-2023 alone, after the introduction of sanctions and an oil embargo, combined with the price cap mechanism, the Russian Federation lost approximately 34 billion euros in export revenues, a reduction of ≈14%. Of this, 32 billion euros was due to falling prices and 2 billion euros to a decrease in export volumes. The highest daily losses reached 180 million euros per day in the first quarter of 2023. Another important marker of crisis changes is the decline in export revenues. According to B. Dodonov *et al*. (2023), in November 2023, export revenues from Russian maritime oil fell to USD 15.2 billion, representing a decrease of approximately USD 3.2 billion per month. As a result, a combination of simultaneous pressures created a systemic crisis. The loss of the European market, which had served as a stable source of income for the Russian Federation for many years, proved critical. This loss not only reduced foreign exchange earnings but also undermined the basis of the "energy rent". Without the rapid development of alternative routes, the creation of new reliable logistics and cheaper transportation, even while maintaining export volumes, Russia will not be able to restore the profitability of its energy sector to pre-war levels. Within the established pipeline-contract model, relations between Russia and the European Union were built on energy interdependence, which J. Johannesson & D. Clowes (2022) defined as the structural basis for political dialogue between the parties. The EU viewed Russian gas as a stable resource that ensured price competitiveness and predictability of supplies, while Russia viewed it as a market that generated the majority of export revenues in the oil and gas sector. This model allowed both actors to maintain a balance of interests in which economic benefits dominated political disputes. Russian-European energy interdependence was built on a model of long-term contracts, developed pipeline infrastructure and mutual investments in transport corridors, from "Brotherhood" and "Yamal-Europe" to "Nord Stream" and "Nord Stream 2". By 2021, the EU had imported 155 billion cubic metres of gas from Russia, accounting for approximately 45% of European external gas imports and around 40% of consumption (How Europe can cut natural gas…, 2022).

The collapse of this model after 2022 was systemic in nature. The mechanism of interdependence itself ceased to function as an instrument of political restraint and mutual risk mitigation. Until 2022, the EU believed that Russia's high dependence on the European market created an incentive for Moscow to avoid destabilising actions. However, the invasion showed that economic losses did not deter the Kremlin from making political decisions. G. Zachmann *et al*. (2022) noted that Russia no longer perceives energy interdependence as a constraint, instead using it in 2021-2022 to deliberately reduce supplies for political purposes. Gazprom limited stocks in its European storage facilities in the summer months of 2021, and in 2022 began to consistently reduce supplies to EU countries, citing technical reasons that the European Commission identified as politically motivated (Report from the Commission…, 2024). Thus, a former instrument of stability has become a vulnerability. In response, the EU has moved from a model of dependence to an intensive diversification strategy. The REPowerEU programme: Affordable, secure… (n.d.), presented in May 2022, enshrined the political goal of completely abandoning Russian fossil fuels by 2030. Three key areas have been identified: increasing LNG imports, accelerating the transition to renewable energy sources, and strengthening the internal market technologically through interconnectors and the shared use of gas storage facilities. The analysed dynamics demonstrated not only a quantitative reduction in supplies, but also a profound change in the structure of interdependence that formed the basis of the European-Russian energy system. In order to clearly define the nature of this interdependence until the moment of its actual destruction, it is important to summarise the parameters that defined both sides until 2022. Although the EU perceived Russian supplies as economically advantageous and stable, this model contained a number of imbalances that made it asymmetrical. For Russia, the European market was not just one of its export destinations, but a fundamental basis for economic rent, budget stability and strategic influence. For the EU, Russian energy resources were important but not exclusive, and the opportunities for diversification were much broader. The generalised parameters of this model are presented in Table 1, which clearly shows the asymmetry of the economic, political and strategic interests of the parties.

Table 1. Euro-Russian energy interdependence until 2022

Indicator	For the Russian Federation	For the EU
EU share in Russian energy exports	The EU was the main market: over 70% of gas exports and 50% of oil exports went to the EU (until 2021)	The EU imported significant volumes from Russia: 40-45% of gas, 25-30% of oil, 45-55% of coal
Economic importance of supplies	Energy revenues accounted for 35-45% of the Russian budget and ~60% of foreign exchange earnings	For the EU, energy resources from Russia accounted for only part of the import balance; the energy market was diversified
Degree of diversification	Very low: the Russian market is dominant, alternatives are limited (until 2022, China consumed only ~10% of oil exports and a minimal amount of gas)	High: the EU had 10+ gas/oil suppliers + LNG infrastructure

Table 1. Continued

Indicator	For the Russian Federation	For the EU
Political interdependence	The Russian Federation used energy as an instrument of influence (prices, volumes, political conditions)	The EU sought to reduce risks through diversification and reducing dependence on oil
Strategic interest	Rent maximisation through stable European contracts; lack of incentives for diversification	Gradual reduction in dependence after 2014; EU strategic documents focused on decarbonisation and LNG

Source: created by the author based on Directive 2009/72/EC (2009), Judgment of the General Court… (2012), Engie and Gazprom export… (2016), How Europe can cut natural gas… (2022), REPowerEU: Affordable, secure… (n.d.), E.J. Holland (2022), G. Zachmann et al. (2022), B. Dodonov *et al*. (2023), Gas market report… (2024), M. Siddi (2025)

An analysis of the parameters presented until 2022 shows a clear structural asymmetry in the interdependence between the Russian Federation and the EU. Although formally the energy flows were mutually beneficial, their strategic importance for each side was unequal. For the Russian Federation, the European market was of systemic importance: more than two-thirds of gas exports and about half of oil exports went to EU countries, providing up to 45% of federal budget revenues and up to 60% of foreign exchange earnings (Energy fact sheet…, 2022). Thus, the stability of the Russian macroeconomic model was directly linked to European demand, which created a high dependence on external counterparties. For the EU, the situation was different in nature. Russian energy sources accounted for a significant but not critical share of the overall energy balance, especially in the oil sector, where the global market is liquid. The greatest vulnerability was concentrated in the pipeline gas sector, but even there the structure of dependence was moderately diversified, as the EU had more than ten suppliers and a developed LNG infrastructure, which allowed it to gradually reduce risks. The Russian Federation actively used energy as a tool of influence through pricing, supply volumes and political signals accompanying contractual decisions. For the EU, this practice created risks that, since 2014, have been an incentive for the development of diversification, energy security and decarbonisation policies. As a result, the EU developed a medium-term strategy to reduce its dependence, while Russia remained tied to a model of concentration on a single market and effectively ignored the need for infrastructure reorientation. Thus, until 2022, the interdependence was structurally asymmetrical: for Russia, the European market was a systemic source of rent and budget stability, while for the EU, Russian energy resources remained significant but potentially replaceable. It was this asymmetry that determined the different adaptation capabilities of the parties after 2022 and set the direction for the further transformation of the European-Russian energy architecture.

Geopolitical consequences of the reorientation of Russian energy exports towards Asia. After losing its main European market for energy resources, Russia was forced to seek alternative export routes, primarily to Asian markets. The key mechanism was the expansion of maritime tanker flows through the use of the so-called "shadow fleet". This fleet consists of vessels that transport Russian crude oil and petroleum products, often under the flags of third countries, with minimal or questionable insurance, without complying with standard international transport requirements and without clear identification through the Automatic Identification System. According to estimates by P. Katinas (2024), as of September 2024, 86% of maritime transport of crude oil from Russia was carried out by "shadow" tankers, while only 14% was carried out by vessels insured or registered in countries that support sanctions regimes. This shift meant that Russia reduced its dependence on Western insurance and transport companies, which refused to cooperate after the sanctions were imposed. According to sources, by 24 February 2022, the share of "shadow" tankers in maritime oil exports was only about 13%, but by July 2023, it had grown to 42%, i.e. almost fourfold. Given these figures, it can be concluded that Russia quickly mobilised non-regulated shipping resources to maintain exports. Thanks to "shadow" tankers, it was also possible to redirect part of the flow to new markets, mainly Asian ones, bypassing the maritime and insurance restrictions of other countries. New routes were used: through the Suez Canal, around Africa, into the Indian Ocean, to ports in India, China, Turkey, the United Arab Emirates and other Asian and African countries. This maritime logistics was more expensive than pipeline deliveries to Europe, but it allowed the Russian Federation to maintain significant exports despite sanctions. According to Ukrainian intelligence estimates, in 2024, more than 60% of crude oil exports were carried out via the "shadow fleet" (78% of crude oil and 37% of petroleum products) (Moscow transported over…, 2025). At the same time, this scheme has negative economic and structural consequences, which in the long term may reduce the effectiveness of the Russian export model. The use of opaque logistics chains and the formation of a "shadow fleet" increases transportation costs. The real cost of delivering a barrel of oil to Asia exceeds pre-war levels and even more so exceeds the cost of pipeline deliveries to the EU, which were the basis of the Russian rent model (One year of sanctions…, 2025). In other words, even if export volumes remain high, the net profit per barrel is reduced due to additional costs for logistics, insurance, reflagging and fleet operational management.

The second factor is the increase in transportation risks, in particular the spread of so-called "dark logistics", characterised by the opacity of logistics operations and the high level of technical wear and tear of vessels. A significant part of the fleet used by the Russian Federation to circumvent sanctions has been in operation for more than 20-25 years, which is considered a critical age threshold for tankers by global standards (Muravskyi, 2025). Old vessels are characterised by frequent technical failures, an increased likelihood of oil spills, difficulties in passing mandatory inspections, and a propensity for accidents in complex navigation areas. The lack of quality insurance coverage, as leading P&I clubs refuse to insure tankers involved in operations that violate sanctions regimes, means that any incident could result in significant financial

losses that would fall directly on Russian exporters or affiliated structures (One year of sanctions…, 2025). Increased logistics costs and technical risks directly reduce exporters' margins. And due to the increased danger and opacity of operations, buyers demand discounts. Thus, the Russian Federation loses not only on transport costs, but also on lower export prices. In fact, a double discount is being formed: one related to sanctions risks, the other to logistics and insurance factors. According to various estimates, this discount can range from USD 10-25 per barrel, depending on the direction of supply and the specific grade of oil (Kilian *et al.*, 2025). Taken together, this means that even with an increase in physical export volumes, the amount of foreign exchange earnings remains lower than during the period of stable pipeline exports to the EU. The long-term sustainability of this model should be considered separately. Structural dependence on vessels in poor technical condition and with uncertain insurance creates a fragile system that can only function under stable market conditions and in the absence of external shocks. Any large-scale accident, especially in internationally sensitive regions, could not only cause direct financial losses, but also provoke tougher international sanctions and the blocking of ports or routes for "shadow" tankers. This will increase costs for the Russian Federation and may temporarily or permanently reduce its export capabilities (Kilian *et al.*, 2025). In the long term, such a system also makes it difficult to attract investment in fleet modernisation, as sanctions restrict access to Western technology, shipyards and financial instruments. Thus, although the formation of a "shadow fleet" has become a key adaptation mechanism in the short term, it is in fact a compromise between the operational ability to continue exports and a reduction in the reliability, security and profitability of the system. All this undermines the long-term sustainability of the Russian energy model and increases its dependence on high-risk logistical innovations.

In addition to maritime deliveries, Russia still had the gas sector, primarily through pipeline projects to the east. Central among these is the "Power of Siberia" project, which has been exporting Russian gas to China since 2019 (Nakano & Palti-Guzman, 2025). However, its real role in compensating for losses in the European market remains limited, due not only to technical factors, but also to political and economic factors related to Beijing's position. Unlike the EU countries, which were scattered competitors for Russian energy resources, China has effectively become a monopsonistic buyer of pipeline gas from Russia, which has shifted the negotiating dynamics in Beijing's favour. It is China's monopsonistic position that has enabled it to dictate the terms of long-term contracts, primarily pricing, indexation and volume flexibility. The pricing formula for gas supplied via the "Power of Siberia" pipeline is linked to a basket of petroleum product prices in Chinese regions, but is extremely insensitive to fluctuations in spot prices in Europe (Nakano & Palti-Guzman, 2025). This means that Russia cannot count on the premium prices that provided it with record gas revenues in the EU until 2021. On the contrary, contracts with China contain discount elements and set a lower average export price, creating an asymmetry in which Beijing gains a strategic advantage and Moscow gains limited and low-margin dependence. Beijing's political control over import volumes is also a factor limiting Russia's manoeuvrability. Unlike the EU, which has typically sought stable and predictable volumes, China insists on the ability to vary purchases depending on domestic demand, climatic conditions, or competition from LNG, which the country actively imports from Qatar, Australia, and the United States. In practice, in 2022-2024, China is increasing its purchases of Russian pipeline gas only when it is economically viable, while not guaranteeing stable long-term peak withdrawals (Healy *et al.*, 2025). This behaviour demonstrates not only economic pragmatism, but also actual political control over Russian exports, as Russia does not have the capacity to redirect these volumes to third-party buyers in the event of a decline in Chinese imports. The infrastructure dimension of the situation also critically limits the potential for an eastern reorientation. The capacity of the "Power of Siberia" pipeline in its most optimistic configuration is estimated at approximately 38 billion cubic metres per year, which is about 9% of China's consumption (China completes full pipeline…, 2024). Thus, even full utilisation of the eastern route provides only about a quarter of pre-war European volumes. An analysis of the dynamics confirms that exports to China have grown, but their level does not even reach half of what was provided by the European market before 2021. The lack of transparent data from Gazprom and the impossibility of independent auditing make it impossible to confirm scenarios of an equivalent replacement for the lost European market. The "Power of Siberia 2" project, which was supposed to technologically and strategically compensate for the losses of the EU gas market, is also under China's complete political control (Nakano & Palti-Guzman, 2025). Beijing is slowing down the finalisation of negotiations, aware of the weakness of Russia's negotiating position, which is more interested in opening a new route than China is in additional supplies. J. Nakano & L. Palti-Guzman (2025) noted that China has significant alternatives in the form of LNG and Central Asian pipelines, and therefore agreements on "Power of Siberia 2" will only be adopted if the price package is favourable to China. This means that Russia finds itself in a situation of institutionalised asymmetry, where the buyer dictates the terms of future contracts and the seller is forced to agree to significantly less favourable conditions than those that prevailed on the European market. It is also important that China's monopsony strategy is not limited to economic instruments: it has a political dimension. China uses energy imports from Russia as a lever to manage bilateral dependence. During periods of political tension, Beijing demonstrates its ability to restrain imports or delay negotiations, securing additional room for manoeuvre on the international stage. Energy cooperation is turning into an instrument of asymmetric interdependence, in which the weaker side is not only limited in its economic opportunities but also falls under the political influence of a more powerful actor. As a result, the gas dimension of the eastern reorientation shows that China has not become a saviour for the Russian energy sector, but rather an actor that has gained the opportunity to structurally reformat trade conditions in its favour. Despite the growth in pipeline supplies, the Russian side faces limited capacity, tough pricing, a lack of viable

alternatives, and a complete absence of an equivalent replacement for the European market. There are no independent public reports demonstrating that export revenues or volumes comparable to the pre-war European market have been achieved. This highlights the fundamental asymmetry of the new model, in which China's monopsony power has become a key factor in shaping the conditions of Russia's eastern energy pivot. At the same time, plans for a large-scale increase in LNG exports, which were envisaged as a strategic alternative to pipelines, have also slowed down. After 2022, foreign partners and technology service companies, on which Russia relied for the modernisation of LNG terminals and the construction of new ones, left the market due to the risk of sanctions. This reinforced the technological and infrastructural indispensability of previous pipeline schemes, while hindering adaptation to Asian markets. This often led to the slowdown of new projects, delays in equipment procurement, and a lack of maintenance services (Lee & Kim, 2023). As a result, even demonstrative promises of a "gas reorientation" often remained declarative, not covering the real scale of export flows. These structural constraints limit the pace of adaptation. They have two important consequences. First, even while maintaining part of its exports, the Russian Federation loses most of its foreign exchange earnings, as LNG or tanker shipments often come with significant discounts and do not generate the profits that the European continental market provided. Second, this model is unsustainable in the long term: low security, dependence on insurance conditions, price fluctuations, transport and transit risks all increase vulnerability. Even a large-scale redirection of part of exports to Asia does not change the strategic balance: logistics costs, price reductions and risks keep overall profitability below pre-crisis levels. Sea routes through the Suez Canal or around Africa are longer, more complex and more expensive than pipelines to Europe. This means that for Russia, a real reorientation requires not just a reconfiguration of logistics, but significant investment in new infrastructure, long-term contracts with Asian buyers and a willingness to operate in conditions of much higher transaction risks.

After 2022, strategically redirecting exports to Asia became a necessity for Russia. Among the Asian importers on which Russia relied, China and India occupied dominant positions, as they were the most willing to accept significant volumes of crude oil and petroleum products, often at reduced prices, and to provide logistics through maritime transport. However, their role, although it was to maintain Russia's export flows, at the same time created new asymmetries in supplier-buyer relations, which significantly reduced Russia's strategic importance as an energy player. At the same time, the structure of the end buyers of these supplies changed dramatically. Analysts note that in 2023, India and China together accounted for about 69% of all maritime deliveries of Russian oil via the "shadow fleet," with 32% exported to India and 37% to China (Levi *et al.*, 2023). This concentration of demand gives these countries the role of dominant buyers. In the case of China, this monopsony position has proven effective. China has powerful domestic oil refining, a large domestic consumer market, state support and control over large oil refineries. In a situation where the West refused to buy Russian raw materials, Chinese companies were able to purchase Russian oil at a discount, often reducing the price significantly below world levels. After 2022, India became one of the key beneficiaries of the transformation of Russian energy logistics, taking advantage of the sanctions pressure on Russia to obtain the most favourable price conditions. The nature of India's strategy can be described as opportunistic, but at the same time well-structured: New Delhi has managed to turn the forced reorientation of Russian flows into a tool for strengthening its own energy security, reducing import costs and enhancing the competitiveness of the oil refining sector. The profitability of imports for Indian refineries was due not only to the discount, but also to the structural logic of the domestic market: the country is one of the world's largest oil importers, the depth of processing at key enterprises is high, and the possibility of re-exporting petroleum products allows it to compensate for its vulnerability to fluctuations in world markets.

In addition, trends in 2024-2025 show that Indian companies not only increased their purchases, but also actively used a "shadow fleet" to circumvent sanctions restrictions. On the one hand, this created significant discounts for the buyer; on the other hand, it posed serious risks related to environmental safety, possible accidents and non-compliance with international insurance standards. Thus, India's supply policy included an element of strategic "arbitrage": by obtaining cheap raw materials through the use of the most risky logistics schemes, the country strengthened its competitiveness in the petroleum products market. At the same time, India's strategy is not limited to exploiting Russian discounts; it is part of a broader energy diversification aimed at reducing dependence on the Middle East. After 2020, New Delhi actively promoted a multi-vector import policy, increasing purchases from Russia, the United States, Iraq, Saudi Arabia and Africa. This allows Indian refineries to work with multiple feedstock configurations and reduce political risks associated with regional crises, such as escalation in the Persian Gulf or tensions in the Red Sea (India oil market..., 2024). India's strategy has important political significance. It strengthens India's position as a "strategically autonomous" actor that does not join the sanctions coalition while maintaining its partnership with the West on security issues, particularly in the Indo-Pacific region. Some researchers emphasise that Indian policy demonstrates a unique ability to balance economic benefits and political neutrality: on the one hand, New Delhi receives cheap energy resources from Russia, and on the other, it does not allow itself to become dependent on a single supplier, remaining open to alternative markets (Abraham & Purushothaman, 2024). It should be noted that such discounts are structural in nature. India, like China, thanks to its market mass, has effectively gained the ability to influence pricing conditions, forcing Russian traders to agree to sell at lower prices due to restrictions on alternative channels. Unlike China, which combines commercial interest with political power asymmetry over the supplier, India uses economic logic, where the main tool is the volume of demand capable of absorbing the Russian Federation's excess supply. This creates a situation of persistent asymmetry: Russia depends on the Indian market much more than India depends on Russian

raw materials. The economic efficiency of the Asian reorientation of Russian energy exports remains debatable, primarily due to the significant difference between the conditions of access to the European and Asian markets. After 2022, the Kremlin actively promoted the idea of a "complete" replacement of European premium contracts with supplies to the East, but the available data indicate significant limitations to such a scenario. The European market remained the most attractive due to high margins, long-term oil-indexed/TTF-indexed contracts, and developed infrastructure that minimised transaction costs (Gas market report..., 2024). In contrast, despite rapid growth in consumption, Asian markets operate under fundamentally different conditions: dominance of spot purchases, high competition between LNG suppliers, tough pricing positions of China and India, and the significant role of state regulation in shaping import policy. Analytical reviews show that even an increase in the volume of Russian oil and gas redirected to Asia did not provide a level of export revenues comparable to those of 2018-2021 (One year of sanctions..., 2025). Price dynamics confirm a systemic deterioration in trade conditions for the Russian Federation. After the introduction of the European embargo and price cap on oil, Asian countries began to demand discounts on global benchmarks, primarily the Urals-Brent spread, which in 2024 amounted to USD 15 per barrel during peak periods (McWilliams *et al.*, 2022). This discount mechanism has become a structural element of the Asian trade model, as India and China are effectively monopsony buyers. Despite the increase in physical export volumes, the Russian Federation's budget revenues from oil and gas in 2023-2024 remained lower than in the period before 2022, and the revenues of the National Welfare Fund showed a tendency to dry up (One year of sanctions..., 2025). This indicates a decline in the fiscal effectiveness of the Asian reorientation and an increase in dependence on tax manoeuvres and transport logistics subsidies. The structure of Russian exports has also undergone transformations that raise questions about their sustainability. After losing the European oil market, Russia significantly increased its supplies to India, which has become one of the key importers of Russian raw materials. However, this model is unsustainable, as India is not the end consumer, but refines Russian oil and re-exports petroleum products to global markets, taking advantage of arbitrage. In this context, Russia's strategic prospects depend not on its own competitiveness, but on India's ability to maintain the profitability of refining and re-exporting under conditions of tightening sanctions regimes. As for China, it remains the main driver of gas imports through the "Power of Siberia", but purchase volumes are limited by Beijing's policy of diversifying suppliers and controlling energy security. Acting in a monopsony logic, China is trying to keep import prices as low as possible, which creates long-term pressure on the profitability of Russian pipeline supplies. A summary of these trends indicates that the assessment of Asia's reorientation cannot be limited to an analysis of price dynamics or budget indicators, as the transformation of Russian energy exports is multidimensional, covering infrastructure, trade, political and technological aspects. For a systematic understanding of its consequences, it is necessary to take into account the internal strengths and weaknesses of this model, as well as external opportunities and threats caused by the behaviour of key importers and changes in the global energy environment. The SWOT analysis presented in Table 2 demonstrates the structural asymmetry between the potential benefits and growing risks of Asian orientation, and also allows to assess the long-term sustainability of the new configuration of Russian energy exports.

Table 2. SWOT analysis of the reorientation of Russian energy exports to Asian markets

Strengths	Weaknesses	Opportunities	Threats
The geographical proximity of Eastern Siberia and the Far East to key Asian importers	A sharp decline in the price premium and the need to sell energy resources at a discount	Long-term growth of Asia as a global energy hub	Strategic intensification of dependence on China as the principal price-setter and political arbiter
The formation of a shadow fleet, which expands the possibilities for circumventing sanctions	Limited export infrastructure (the only major gas pipeline is the "Power of Siberia", with no alternatives)	Potential participation in the formation of new market segments in Asia	Possible further tightening of sanctions, including secondary sanctions against the fleet and intermediaries
	High dependence on a narrow circle of buyers (de facto monopsony of China and the growing role of India)	Potential formation of alternative routes	India and other importers may abandon Russian oil if the discount narrows, which would render the export model unstable
	Reduced budget revenues and a decline in foreign currency earnings		Structural degradation of the Russian energy sector due to technological isolation and equipment shortages

Source: created by the author based on Directive 2009/72/EC (2009), Judgment of the General Court... (2012), Engie and Gazprom export... (2016), How Europe can cut natural gas... (2022), Energy fact sheet... (2022), G. Zachmann *et al.* (2022), B. Dodonov *et al*. (2023), Gas market report... (2024), India oil market report... (2024), S. Fortescue (2024), Moscow transported over... (2025), One year of sanctions... (2025), A. Tavadyan & A. Tavadyan (2025), REPowerEU: Affordable, secure... (n.d.)

The data in Table 2 show that the reorientation of Russian energy exports towards Asia is deeply asymmetrical and vulnerable, with weaknesses and external threats outweighing potential opportunities. The structural weaknesses of this model are primarily manifested in a significant narrowing of the circle of buyers, which makes the Russian Federation dependent on the monopsony behaviour of two key actors. Both states have more diversified energy portfolios and are able to dictate pricing terms, which creates a chronic discount mechanism

for Russian oil and gas and reduces the long-term fiscal effectiveness of exports. Internal weaknesses also include limited infrastructure, a lack of LNG capacity, technological sanctions, a worn-out transport fleet, and rising logistics costs, which increase the cost of deliveries to Asian markets. Together, these factors create a structural mismatch between growth in physical export volumes and stagnation or decline in real Russian budget revenues. External threats exacerbate this vulnerability, making the Asian reorientation strategically unsustainable. The key risks are those associated with potential changes in the foreign trade policies of China and India. China, which is simultaneously increasing imports from the Middle East, Central Asia and through LNG contracts, may reduce purchases of Russian gas as part of a "price pressure" tactic, which will directly affect the profitability of the "Power of Siberia" project and future pipeline initiatives. India, for its part, remains an opportunistic importer: its demand depends not on strategic partnership logic, but on the profitability of processing and re-exporting, so any changes in global prices, sanctions regimes or access to alternative suppliers could sharply reduce its interest in Russian raw materials. Weaknesses and threats create a systemic imbalance in which the potential opportunities of Asian markets do not compensate for the losses incurred as a result of the withdrawal from the European market. Instead of diversification, Russia has ended up with a more concentrated and risky export model, in which economic, logistical and political dependence on a limited number of importers creates long-term vulnerabilities. The SWOT analysis showed that the reorientation towards Asia is not strategically sustainable and is becoming a factor in the accumulation of risks, which will only deepen over time due to structural changes in the global energy market and the tightening of sanctions regimes.

As a result, the reorientation of Russian energy exports towards Asian markets after 2022 appears to be a forced strategy that has partially ensured the preservation of physical supply volumes but has failed to replicate the economic, political and structural parameters of the previous model of interaction with Europe. The nature of this reorientation is determined by a deep asymmetry: China and India have gained access to significant volumes of Russian raw materials at reduced prices, strengthening their own energy security, diversifying imports and increasing their own ability to influence the market. The Russian Federation, on the other hand, found itself in the position of a supplier that lost premium contracts and was forced to agree to less favourable trading conditions, which manifested itself in a discount to global benchmarks, increased logistics costs, a stronger role for the "shadow fleet" and growing dependence on a limited circle of buyers. The financial consequences of this transformation are also significant: budget revenues from the energy sector are showing a steady downward trend, which reduces fiscal stability and the state's ability to finance military-political and socio-economic programmes. Replacing European contracts with Asian ones, which are formed according to the logic of the spot market, does not provide the Russian Federation with equivalent revenues in the medium and long term. China's growing monopsony power and India's opportunistic policy only exacerbate the Russian Federation's structural vulnerability, as these states set their own pricing conditions, procurement rhythms and import diversification policies, depriving the Russian Federation of the ability to manoeuvre and revise contract parameters. The strategic dimension of reorientation is characterised by the accumulation of new risks: Russia is losing the ability to use energy as a tool of political influence, as Asian countries not only have a wider range of suppliers, but also do not demonstrate the political loyalty that Moscow expected from certain European partners. At the same time, the strengthening of infrastructure ties with China, including gas projects such as "Power of Siberia", is creating structural dependence that limits opportunities for diversification in the future. The geo-economic logic has also changed: Russia is increasingly acting not as a supplier with an advantage in market choice, but as an exporter with reduced bargaining power, forced to adapt to the demands of buyers. Current trends clearly show that the reorientation towards Asia does not compensate for the loss of European premium contracts, either financially or strategically. Instead, it creates a new system of dependencies in which China and India reap the maximum economic benefits, while Russia finds itself in a structurally weaker position, deprived of opportunities for manoeuvre and sustainable long-term planning. In view of this, the reorientation should be seen not as a development trajectory, but as a forced adaptation model with high political and economic risks, which are becoming key in determining the future energy policy of the Russian Federation and its role in the global energy balance.

Discussion

The results revealed a multidimensional transformation of the Russian energy model, which underwent critical overload after 2022. The analysis showed that the key structural elements of this model became the main factors of its crisis. The systemic limits of the energy rent policy have been identified, pointing to the large-scale geopolitical consequences of the forced reorientation of exports. The study also confirmed that the destruction of traditional export channels cannot be compensated for immediately, and that infrastructure, logistical and contractual barriers pose long-term risks. Importantly, these results are of increased analytical significance against the backdrop of divergent assessments in the contemporary literature, where some authors considered the Russian model to be adaptive, while others emphasised its fundamental vulnerability. Studies by T. Rokicki *et al*. (2023) and Y. Lei & S. Sui (2024) emphasised that Russia's energy strategy during 2000-2025 was based on the structural stability of European demand, which created the preconditions for the formation of a long-term model of export dependence. T. Rokicki *et al*. demonstrated that, from a geopolitical perspective, the Russian Federation gradually deepened its energy partnership with China, viewing it as a key direction for compensating for possible external shocks and as an element of a broader political and economic alliance aimed at strengthening the positions of both states in the global energy system. In this context, the intensification of Russian-Chinese cooperation was not so much a reactive as a strategic process, corresponding to Beijing's desire to ensure energy security and Moscow's desire to

find an alternative to European markets. Taken together, these results allowed the authors to assume that Russia's reorientation towards Asian markets had real compensatory potential, although it was accompanied by numerous challenges. Contrary to optimistic assessments of the potential for expanding Russian exports to China, the analysis showed that even in the medium term, infrastructure constraints, logistical asymmetry and dependence on a single market did not allow for compensating for the loss of the European market. A comparison of actual export volumes through existing pipeline capacities with the potential throughput capacity of new projects showed that the Kremlin's declarative strategic intentions significantly outpaced its actual technical and economic capabilities. This contradicts the conclusions of T. Rokicki *et al.* (2023) about the "rapid strengthening" of the energy partnership, as the dynamics revealed in this study pointed more to a political superstructure than to a material increase in export opportunities. Instead, the observations of Y. Lei & S. Sui (2024) regarding a sharp and irreversible shift in the EU's energy architecture remain relevant, and the results of this study confirmed that the main mechanisms of the EU's import reorientation, sanctions, LNG diversification and restoration of national reserves created a structural rather than cyclical shock for the Russian Federation. The results of the study have expanded on the ideas proposed in the works of the aforementioned authors. The analysis showed that the Russian export model was much more vulnerable to the loss of the European market than assumed in the works of T. Rokicki *et al*. and Y. Lei & S. Sui, where the structural inertia of the Russian energy sector was assessed much more optimistically. In their work, D. Liu & H. Xu (2021) determined that the formation of the "Power of Siberia" pipeline was the result of a complex political situation and the interaction of several policy streams: from the transformation of China's energy balance and the reform of its gas pricing to the internal reformatting of the Russian gas industry. The authors showed that it was the informal negotiation processes and the political "window of opportunity" in 2014 that allowed the parties to reach an agreement despite ongoing price disputes and uncertainty about the route. S. Pye *et al.* (2025) demonstrated in scenario modelling that the success of Russia's "pivot to the East" depended largely on the trajectory of Chinese demand and Moscow's ability to compensate for the loss of the European market. S. Pye *et al*. assumed that long-term contracts and increased exports to China could ensure a partial restoration of export stability. However, the results of this study cast doubt on such optimistic forecasts. Unlike the approach of D. Liu & H. Xu, who analysed the political mechanisms of concluding agreements, and S. Pye *et al.*, who modelled possible trajectories under different demand scenarios, this study used actual data on infrastructure capacity, supply dynamics and logistical constraints. The comparison showed that even at maximum capacity, the volumes of the "Power of Siberia" were not comparable to pre-crisis exports to Europe, and the possibilities for diversification remained structurally limited. This showed that the conclusions of previous studies largely depend on assumptions about China's geopolitical behaviour and the pace of its energy transition, while the empirical picture confirmed a significantly lower level of adaptability of the Russian gas sector. This study complemented and adjusted existing theoretical models, emphasising that infrastructure and market constraints make the current "pivot to the East" a less viable strategic trajectory than previously thought.

This study refined and developed the findings of J.M. Godzimirski (2021) and M. Skalamera (2022), who analysed the structural vulnerabilities of the Russian energy model in the context of the global energy transition. J.M. Godzimirski showed that Russian strategic thinking during 2010 -2025 paid limited attention to the challenges associated with climate policy and the global decline in demand for fossil fuels, which in turn led to the preservation of the rentier nature of energy exports and the absence of deeper reforms. The conclusion about institutional inertia and strategic underestimation of external risks is consistent with the results of this study, which confirmed that it was precisely the disregard for global changes in the rules of the game that made the Russian budget system extremely vulnerable after 2022. Similarly, M. Skalamera demonstrated that the erosion of Russian "energy power" in post-Soviet Eurasia began long before the recent crisis, when the emergence of China as an alternative market and the progress of the energy transition reduced Moscow's role as an indispensable exporter. At the same time, the author emphasised that the Russian Federation is still capable of maintaining influence through elite networks and shared risks characteristic of hydrocarbon exporters, which was consistent with the thesis of a certain stability of rentier regimes. Taken together, these provisions formed an important context for interpreting the results obtained in this study. The analysis showed that the structural rentierism and strategic inertia discussed in previous works became key factors in the systemic degradation of the export model and fiscal vulnerability after 2022. However, the results of the analysis demonstrated a deepening level of fiscal threats and pointed to the potential for internal tax manoeuvres to partially offset external losses. A comparison of the data showed that the rate of risk accumulation, the decline in oil and gas revenues, the growth in domestic market subsidy costs, and the increased burden on the National Welfare Fund exceed the state's ability to neutralise them. The rentier nature of the Russian model, in the context of shrinking external markets, ceases to be a compensatory mechanism and instead becomes a source of fiscal instability. Contrary to the conclusions about the "manageability" of budgetary pressure presented in previous studies, the results of this analysis show that internal stabilisation instruments only work in the short term, while the strategic decline in export revenues has a cumulative effect that undermines socio-economic stability.

The results of this study only partially correlate with the conclusions of F. Liu (2023) and M. Mälksoo (2023), who interpreted Russia's strategic pivot to the East differently. According to F. Liu's argument, the "pivot to the East" after 2014 became an integral part of Russian foreign policy, where anti-Western rhetoric and deepening cooperation with the Asia-Pacific region were constructed as interrelated processes. The author emphasised that although the Eastern direction could partially replace the Western one in the field of trade, it was not able to compensate for the loss of technology, investment and

institutional interaction with the EU; moreover, the gap between Russian political ambitions and the state's real capabilities remained. The assessment carried out in this study confirmed only part of these theses: it was found that Russia's reorientation towards Asia did indeed have limited effectiveness, but the key factor was not so much political confrontation with the West as structural market barriers. M. Mälksoo's (2023) approach, which focuses on the post-colonial and imperial dimensions of Russian foreign policy, has allowed for a deeper understanding of the logic behind Russia's strategic shift. According to M. Mälksoo, the war against Ukraine became a crystallisation point for imperial practices that called into question the Russian Federation's ability to form equal partnerships outside its own "hierarchical vision" of international relations. The data obtained in this study confirmed this thesis: Russia's presence in Asian markets was formed in conditions of asymmetry, where China and India, key counterparties, only strengthened their bargaining power by exploiting the vulnerability of Russian exports. This contradicts the assumption about the possibility of stable long-term consolidation of the Russian Federation in Asia. In addition, it was found that in a number of cases, Asian states viewed cooperation with Russia as tactical rather than strategic. As emphasised by J. Yang *et al.* (2021), the long-term degradation of the Russian energy model was shaped not only by external market shocks, but also by internal imbalances that had accumulated over decades. The authors demonstrated that the asymmetric impact of natural gas and oil rents led to a peculiar transformation of the "resource curse", which manifested itself in the paradoxical stimulation of economic growth at the expense of oil revenues and the simultaneous inhibition of development due to dependence on gas rents. The results obtained in this study are consistent with these conclusions, showing that in the context of a sharp decline in European demand, the structure of the Russian energy sector was vulnerable not only to external shocks but also to internal institutional inertia. This was confirmed by the strengthening of logistical barriers, the slow reorientation of infrastructure, and the low flexibility of state regulation. Similarly, the results of M. Imran *et al*. (2024) revealed the universality of resource curse mechanisms in BRICS countries, emphasising that excessive dependence on non-renewable resources created long-term risks for economic dynamics and structural stability. The key point is the emphasis on competition between states for access to resources and the growing vulnerability of economic development due to irrational management of natural resources. This study confirmed these findings using Russian data, demonstrating that the structural imbalances of the energy model were exacerbated precisely in the context of the need for rapid reorientation of exports, when the resource-oriented economy faced a shortage of alternative growth instruments.

As emphasised by A. Boute (2022) and M.C. LaBelle (2023), Russia's energy infrastructure was formed in conditions of deep political interdependence, where energy resources were not only a commercial commodity but also a geopolitical tool designed to strengthen Moscow's influence over its external partners. However, according to A. Boute, the very architecture of the international energy regime contributed to the emergence of "dangerous dependencies," as regulatory mechanisms for trade and investment locked states into unidirectional relationships and hindered strategic diversification. The results confirmed this thesis: the unidirectional nature of Russian gas exports to the EU and the lack of flexible tools for restructuring logistics became key structural weaknesses that accelerated the crisis after 2022. Similarly, M.C. LaBelle's publication showed that the use of energy resources as a weapon undermines the very basis of interdependence and disrupts established energy security parameters, turning economic ties into an instrument of political pressure. The analysis conducted is directly consistent with this logic, showing that the destruction of gas interdependence between the Russian Federation and the EU was not only the result of political decisions, but also the result of the exhaustion of an institutional model that did not provide for alternatives in the event of conflict escalation.

The conclusions of I.-E. Oana *et al*. (2025) and M. Vošta (2025) that Russian-European energy interdependence had a complex but uneven structure were only partially confirmed in this study. As the results of I.-E. Oana *et al.* showed, the breakdown of relations after Russia's invasion of Ukraine was not a straightforward process: although there was a prevailing intergovernmental consensus on sanctions in Europe, there was significant identification, party and economic polarisation within individual states. These internal divisions affected the ability to make quick joint decisions, confirming the thesis of uneven crisis pressure within the EU. In the context of current study, this aspect was relevant, but the data obtained showed that the deepest asymmetry was not within the EU, but in the interaction between the EU and Russia, where the structure of dependencies was extremely one-sided. M. Vošta's analysis, in turn, emphasised that the long-term interdependence between the Russian Federation and the EU in the field of fossil fuel supplies created an illusion of stability, which in fact concealed a significant imbalance: the EU, having the opportunity to diversify its energy balance and accelerate the transition to renewable sources, could gradually reduce its dependence, while the Russian export model remained structurally "locked" in the direction of a single market. This study confirmed the nature of this asymmetry: the reduction in imports from Russia affected individual EU countries, but did not cause a systemic crisis within the EU, while for Russia the consequences were strategic and irreversible. In this sense, the claim of a "mutual shock" seemed exaggerated: empirical data showed that the energy gap was in fact a one-sided shock that hit the Russian economy much harder than the European one.

Thus, the discussion showed that the results of the study are generally consistent with works that emphasise the complex and uneven structure of energy interdependence between the EU and Russia. The data obtained confirm the key theses about the asymmetric nature of the crisis: for the EU, the energy gap became a catalyst for accelerated diversification and structural reforms, while for Russia it caused systemic long-term losses that cannot be compensated for within the existing export model. The consistency of the results with studies analysing the EU's need to transform its energy balance and strengthen security mechanisms emphasises that, in the medium

term, the European side is largely independent of a single supply channel. The analysis allows to formulate a more accurate view of the nature of this crisis: it was not a symmetrical mutual loss, but manifested itself as a long-term unilateral vulnerability of the Russian model, which has no comparable opportunities for adaptation or diversification. These conclusions refine previous assessments and demonstrate that the EU's potential for regrouping and modernisation significantly exceeds the Russian Federation's ability to compensate for the loss of a key market.

Conclusions

The study analysed price trends, structural shifts in oil and gas exports, changes in logistics and commercial conditions, and identified the strategic positions of China and India as the main importers of Russian energy resources. The results showed that after the introduction of the European embargo, Russian supplies to Asian countries were accompanied by a steady expansion of the discount to global benchmarks, which led to a decrease in the actual profitability of exports. It was found that despite an increase in physical supply volumes, the Russian Federation's budget revenues from the energy sector remained lower than before 2022, and fiscal stability depended on tax manoeuvres and logistics subsidies. The analysis showed that India is forming a model for the processing and re-export of petroleum products in which Russia acts only as a supplier of raw materials and does not control the final value added. It was found that China retains its position as a key buyer of pipeline gas, but at the same time uses its monopsony power to minimise purchase prices and limit the scale of future projects. The SWOT analysis confirmed that the Russian Federation's weaknesses lie in its reduced bargaining power and transport and market vulnerability, while the main threats are a possible change in the import policies of China and India, which could sharply reduce Russian exports. The results obtained give reason to assert that the Asian reorientation has not compensated for the loss of European premium markets, either financially or strategically, and the resulting imbalance increases the Russian Federation's dependence on a limited circle of buyers. Conceptually, it has been established that the new model of Russian exports is based on asymmetrical relations in which importers determine price parameters, logistics and the pace of contract expansion, which significantly reduces the autonomy of Russian energy policy. A promising area for further research would be to assess the long-term consequences of monopsonistic dependence on China and India, as well as an analysis of how new sanctions regimes and decarbonisation trends may affect the viability of the Russian energy model.

Acknowledgements

None.

Funding

None.

Conflict of Interest

None.

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