Journal of Process Management and New Technologies
Vol. 13, Issue 1-2, 2025, pp. 14-27

THE PERSPECTIVE OF GAS DISTRIBUTION FROM THE RUSSIAN FEDERATION ON THE WORLD MARKET

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Abstract: *In recent years, the world has witnessed a concerning rise in unrest, causing considerable disruptions across multiple sectors. The Russian Federation's incursion into Ukraine has generated widespread consequences, affecting global production, trade, energy supplies, and inflation. European Union member states have been notably impacted, encountering difficulties in securing oil and gas supplies. As Germany and other EU countries contend with these challenges, particularly those arising from sanctions on Russia, the crisis holds the potential to pave the way for one of the most significant energy alliances in modern history. This development could strengthen and expand economic ties between Russia, a major global exporter of oil and gas, and China, one of the world's largest energy consumers. As these connections grow, a more pronounced political divide between the East and West is anticipated, underscored by extensive and strategic investments in infrastructure for the transportation, storage, and distribution of gas.*

Keywords: *Gas pipelines, gas placement, gas import dependence.*

Original scientific paper
Received: 29.01.2024.
Accepted: 09.02.2025.
Available online: 09.02.2025.
DOI: 10.5937/jpmnt13-56387

1. Introduction

To understand a wide dynamics of international energy trade shaped by the Ukraine conflict, it is necessary to review the political and economic developments from 2013 to 2023. In November 2013, the Ukrainian government decided against signing a proposed association agreement with the European Union (EU), sparking widespread protests in Kyiv, later known as the "Euromaidan" movement. Initially peaceful, the demonstrations escalated into violent unrest, leading to early elections and the establishment of a new government. Simultaneously, tensions erupted in Crimea and the Donbas region, particularly in Donetsk and Luhansk. In Crimea, the Russian population took control, declaring independence. Following a disputed referendum where a majority voted for joining Russia, Crimea was officially annexed by the

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† This designation is without prejudice to positions on status, and is in line with UNSC 1244 and ICJ Opinion on the Kosovo declaration of independence.

Russian Federation. Meanwhile, the Donbas region remained a hotspot of conflict for several years.

In June 2014, Ukraine signed the Association Agreement with the EU, marking a strategic shift towards the West and distancing itself from Russia's influence. This move underscored Ukraine's commitment to deepening ties with Europe. By January 2016, the EU and six Eastern Partnership countries, including Ukraine, brought the Deep and Comprehensive Free Trade Area (DCFTA) agreements into effect. By September 2017, the full implementation of the Association Agreement solidified Ukraine's role as a critical EU trading partner, with trade volumes seeing a notable rise. The EU, led by Germany, acknowledged Ukraine's importance in the region, presenting it as a model for other Eastern European nations seeking closer integration with Europe.

For Ukraine, these strengthened ties were part of a broader strategy to elevate its political position, foster democratic reforms, and advance toward full EU integration. However, this trajectory was abruptly disrupted in 2022 when Russia launched a full-scale invasion, ushering in a devastating new phase of the conflict. Beyond its severe humanitarian and territorial toll, the war has significantly influenced global energy markets.

The conflict has caused major upheavals in the global energy landscape, with economic consequences stemming from Russia's aggression and the Western response, including sanctions and military aid to Ukraine. Economies worldwide, particularly those of Germany, Russia, and China, have faced considerable challenges. Germany, long reliant on Russian energy, was compelled to reassess its energy strategy, emphasizing diversification and a faster transition to renewable energy sources. On the other hand, Russia bore the brunt of extensive Western sanctions, which severely curtailed its energy exports - a critical pillar of its economy. Meanwhile, China, as a global economic leader, adjusted its energy trade policies, striving to balance its longstanding relationship with Russia against its intricate interactions with the EU and the United States.

These energy trade disruptions have had wide-ranging implications, extending beyond bilateral relationships to reshape the global energy order. As the Ukraine conflict persists, its economic effects on global energy markets will likely influence future geopolitical alliances, trade strategies, and energy security frameworks. Understanding these ongoing transformations requires analyzing the interplay of political decisions, economic priorities, and energy dependencies in an increasingly volatile and unpredictable global landscape.

2. Literature review

A significant body of literature presents diverse theories, hypotheses, and perspectives on how armed conflicts and wars influence trade dynamics among warring parties, both regionally and globally. The ongoing war in Ukraine has profoundly disrupted global economies, given the critical roles Ukraine and Russia play in the export of agricultural products, steel, and energy resources.

Scholars adopting both liberal and realist frameworks on interdependence and conflict largely concur that armed conflict substantially impairs trade and other forms of economic exchange between the involved parties (Anderton & Carter, 2021). Barbieri and Levy (1999) argue that societies engaged in conflict often experience a cessation or considerable reduction in trade activities. From the liberal perspective, they suggest that political leaders are deterred from initiating conflict when they anticipate that war will disrupt or eliminate trade or negatively impact trade terms. This view hinges on the hypothesis that the potential economic losses associated with disrupted trade act as a deterrent to war. Specifically, they state political leaders are deterred from conflict when they expect that conflict will disrupt or eliminate trade

or adversely affect the terms of trade, so the hypothesis that trade deters war rests on the assumption that war hinders trade (Barbieri & Levy, 1999, p. 464).

Conversely, realist theorists emphasize the strategic considerations of economic exchange in the context of power dynamics. According to Barbieri and Levy (1999), realist perspectives argue that concerns over relative gains from trade may compel one of the belligerent parties to halt or impede economic exchanges. This approach is rooted in the belief that such actions prevent the adversary from accruing economic and military advantages derived from trade. They assert that concerns about the relative gains or benefits of trade will lead at least one of the belligerents to stop or at least impede trade to prevent their adversary from exploiting the gains and benefits of trade and thereby preventing them from increasing their relative military power (Barbieri & Levy, 1999, p. 465).

These theoretical frameworks offer valuable insights into the broader economic ramifications of armed conflict, underscoring the intersection of economic interdependence and geopolitical strategy. In the context of the Ukraine conflict, these theories help explain the extensive trade disruptions and the strategic calculus shaping the actions of involved nations. Expanding this understanding further allows for a nuanced exploration of how conflicts reshape global economic systems and the balance of power.

Djukić, (2014) agrees with the previous statement in several places. Still, he especially emphasizes that Russia uses gas and oil, as well as the infrastructure for the storage and distribution of these energy sources, as an instrument for achieving its political goals, and further influences the policy of importing countries, especially Germany. Đukić (2014) also points out that, on the other hand, the NATO pact broke its promises long ago, given after the Warsaw Pact's collapse and the Berlin Wall's fall, about non-enlargement. The countries of the West, using various capital-military instruments of the NATO alliance, reached significant political-economic goals, and at the same time influenced the decision-making of other countries. According to him, if some countries can unite and use various instruments to achieve their political and economic goals, why can't another country do it, and if it does, where does the credibility of the first countries come from to criticize the actions of another country, especially if the actions of the second country are significantly lower than the actions of the first countries.

The conflict in Ukraine has significantly altered global energy dynamics, prompting Russia to shift its focus toward the Chinese gas market. Yergin, (2021) highlights the strategic importance of Russia's growing energy exports to China. This realignment serves as both a response to the European Union's efforts to minimize reliance on Russian gas and a long-term strategy by Russia to secure alternative markets and uphold its position as a leading energy provider. Zhang and Chen (2022) examine the deepening energy collaboration between Russia and China, particularly through the Power of Siberia pipeline, which they describe as a crucial development in strengthening this partnership. Their findings align these advancements with China's Belt and Road Initiative and its overarching objectives of ensuring reliable energy access while reducing dependence on trade routes controlled by Western powers.

Crozet and Hinz (2020) argue that Western sanctions against Russia have expedited its economic shift toward partnerships with non-Western nations, especially China and India. This realignment carries profound implications for the global energy market, potentially undermining efforts by Western nations to isolate Russia. Similarly, Goldthau (2016) explored how Russia's diversification of energy markets might counteract the European Union's energy security strategies based on North Stream project. Previously, Goldthau & Sovacool (2012) suggest that, while Europe seeks to diversify its suppliers, Russia's pivot toward Asia has the potential to establish a new axis of energy influence, redefining the structure of global energy governance.

Li at al. (2023) investigate the effects of these shifting global energy trade patterns on Chinese energy security policies. Their study emphasizes that Russia's expanded role as a natural gas supplier to China enhances Beijing's leverage in global trade, adding complexity to the geopolitical framework (Goldthau & Sovacool, 2012). Bailey et al. evaluate the impact of Europe's expedited move toward renewable energy in response to the Ukraine conflict. While this transition decreases reliance on Russian gas, it also intensifies competition for essential resources and technologies required for renewable energy systems, introducing potential vulnerabilities (California Energy Commission, 2023). Lastly, Zhang (2023) delves into the significance of the China-Russia energy alliance within their broader geopolitical strategy, highlighting how their regulatory cooperation and agreements in energy trade not only mitigate the economic repercussions of Western sanctions on Russia but also fortify their collective resistance to Western influence.

3. Research methodology

This paper adopts a secondary research methodology, utilizing data previously published by other researchers, media outlets, and professional organizations within the domain of oil and gas distribution. The existing data are systematically summarized to address the central research question: in what direction is the most significant gas placement market evolving amid ongoing geopolitical tensions? This approach seeks to construct a comprehensive and nuanced representation of the challenges under examination, offering insights that align with both academic and practical perspectives.

To ensure the effective acquisition of data, two principal strategies were employed. The first involved exploring platforms specifically tailored to scientific literature, enabling access to peer-reviewed journals and scholarly articles that provide in-depth analysis and credibility. The second strategy utilized search engines to access essential databases and credible media sources, ensuring a broader scope of information relevant to the research. A crucial aspect of this process was the application of advanced search techniques, including the use of specific keywords and filters, to secure information that is relevant, transparent, and precise, thereby minimizing the potential for bias or misrepresentation.

Additionally, a diverse array of research methodologies was employed to augment the depth and analytical rigor of the study. These methodologies encompass the analysis method, synthesis method, comparative method, statistical method, historical method, and the deductive-inductive approach. The analysis method is instrumental in deconstructing complex concepts into simpler, more understandable components, allowing for clearer interpretation and better engagement with the subject matter. Conversely, the synthesis method combines these simplified elements into a cohesive and meaningful structure, creating a framework that facilitates comprehensive understanding. Together, these methods not only enhance the robustness of the research but also ensure that it addresses the intricacies of the topic in a structured and systematic manner.

The comparative method is applied to evaluate trends in gas procurement, export and import activities, and the transition from Russian gas supplies to alternative sources, providing valuable insights into shifting market dynamics. The historical method is utilized in the introductory section to trace the sequence of events leading to the current situation, emphasizing how historical developments have influenced contemporary market conditions. The statistical method provides a visual representation of numerical data related to imports, exports, and other energy industry parameters, enhancing the accessibility and clarity of the findings. Finally, the deductive-inductive method is employed to synthesize insights and

formulate well-founded conclusions, ensuring that the study offers actionable recommendations and a thorough understanding of the challenges under investigation.

4. A turnaround in gas procurement from the most important EU importers

Although the EU economy depends on the import of crude oil from Russia, an even more sensitive problem is its dependence on gas, especially from Germany. According to the updated annual reports of "OPEC" (OPEC, 2023) and using Eurostat data for 2023 (Eurostat, 2023), Figure 1 illustrates the EU member countries and their percentage dependence on Russian natural gas.

In 2019, the total expenditure for importing natural gas into the European Union was approximately 60 billion euros. By 2021, this figure had surged to 170 billion euros. According to Eurostat projections for the subsequent three years (Eurostat, 2022), costs associated with securing new gas supplies are expected to increase by 50%. Moreover, under the assumption of a 50% reduction in Russian gas imports, total expenditures for EU member states could reach an estimated 370 billion euros.

Furthermore, as depicted in Figure 1, several European countries exhibit a pronounced reliance on Russian natural gas imports. The Czech Republic and Latvia display absolute dependence at 100%, while Hungary follows with a reliance level of 95%. Slovakia depends on Russian gas for 85% of its requirements, Bulgaria for 75.2%, Finland for 67%, and Germany - Europe's largest economy - demonstrates a dependency rate of 66%. This figure highlights the significant vulnerabilities within the EU concerning energy supply diversification and security (Eurostat, 2023; Eurostat, 2022).

Figure 1. Proportions of gas imports by EU countries from Russia in January 2022
Source: Authors

Regarding absolute values, Figure 2 provides data on the three largest importers of natural gas within the European Union over the period from 2013 to 2021. During this timeframe, Germany emerged as the leading consumer of Russian gas, followed by Italy and France, reflecting their substantial reliance on this energy source. Therefore, this is the main reason why we single out Germany.

Germany, as the European Union's largest economy and one heavily reliant on Russian gas, encounters considerable challenges amidst the current geopolitical climate. The historically robust economic and business relations between Germany and Russia have been strategically impacted by the intensifying global political tensions between East and West, exacerbated by the ongoing conflict in Ukraine. These two nations, which share a complex history as neighbors, allies, and adversaries, find themselves once again positioned on opposing sides as the geopolitical landscape shifts in the early 21st century. The price the Germans paid for their inability to resist American influence will be the topic and research field of numerous analyses in the coming years when more data becomes publicly available.

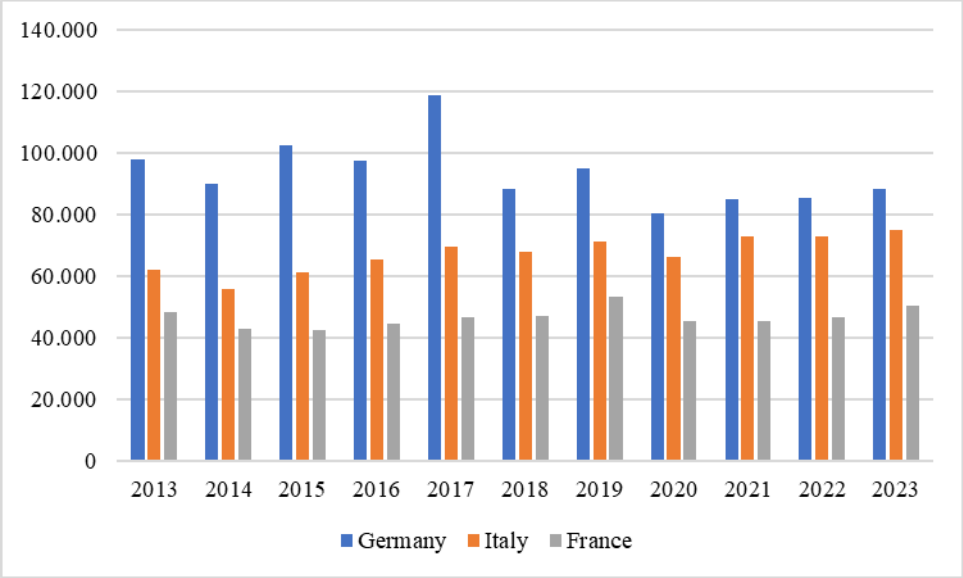

Figure 2. The three largest EU gas importers from Russia 2022
Source: Authors

However, the EU's leading economy should be honored because, within an unprecedented timeframe of just 200 days, the first facility, infrastructural supported, for converting liquefied natural gas (LNG) into its gaseous form was successfully constructed in the city of Wilhelmshaven, which started operating in November 2022. Otherwise, this facility can only provide 8% of Germany's current gas demand on an annual basis. Moreover, as early as January 2023, Germany commissioned a second floating Liquefied Petroleum Gas (LNG) terminal in the city of Lubmin, with a maximum provision of 10% of the current gas demand (GIS, 2024). Also, the work on the third LPG terminal in Brunsbüttel was fully completed at the end of 2023, but there is still no confirmation of commissioning. Its capacity in reception, storage, and distribution amounts to 7% of the annual gas consumption in Germany.

In addition to the three existing terminals, plans are underway for the construction of eight additional facilities. Once operational, these terminals would enable Germany to secure gas supplies from the United States, Qatar, and Egypt, effectively reducing its dependence on Russian imports to a negligible level. Presently, Germany requires at least 7 to 8 additional terminals to facilitate the reception, storage, and distribution of gas. The estimated cost for constructing these facilities exceeds 10 billion euros, representing the minimum investment

necessary to match the volumes previously sourced from the Russian Federation. In January 2023, Germany's Ministry of Energy announced that an agreement had been finalized for the government to construct four LPG terminals, one of which has already been completed. It was further reported that an additional five terminals are expected to become operational by the end of 2024 or early 2025. This ambitious initiative underscores Germany's commitment to diversifying its energy sources and enhancing supply security (Energie & Umwelt, 2024; Alternatively et al., 2017).

However, these estimates refer only to overcoming current needs and procurement problems, which does not include gas needs related to the further development of the German economy, as well as the future fulfillment of obligations under the so-called Green Deal, climate goals, and a carbon-free future. Therefore, German demand for gas would not decrease definitely. Overcoming reliance on inexpensive natural gas from Russia has led to a new dependency on relatively costly liquefied natural gas (LNG) from alternative suppliers, accompanied by the added expenses and risks associated with ocean tanker transportation. Presently, Germany sources LNG primarily from Qatar, the USA, and Norway (Energie & Umwelt, 2024; Siddi, 2018). A notable advantage of constructing these facilities is their potential for future use in transferring and distributing green hydrogen. This capability strategically justifies the investment, aligning with long-term energy transition goals.

The dynamics of LPG imports into Germany are indicative of broader trends observed among other EU member states, though reactions and strategies vary considerably. Moreover, different data sources provide conflicting insights regarding the flow of LPG imports. According to GIS data, the proportion of gas imported from Russia by the EU has decreased significantly in recent years, shrinking by two-thirds in 2023 compared to 2020. This reduction has been offset by increased imports from alternative suppliers such as Norway and the USA (GIS, 2024; GIS, 2023). However, notable exceptions suggest alternative procurement patterns, indicating that diverse trends in gas supply are emerging.

For example, data from the Russian Ministry of Energy in January 2023 revealed that LPG exports increased by 8% in 2022, reaching a total of 46 billion cubic meters. Exports to Spain alone surged by 45% between January and December 2022 compared to the same period in 2021, as corroborated by figures from the Spanish energy company Enagas. Beyond Spain, key importers of Russian LPG in 2022 included France, Italy, Belgium, and the Netherlands, which collectively accounted for 55% of Russia's total gas exports. Between January and October 2022, EU countries collectively increased their imports of Russian LPG by 42% compared to the same period in 2021, with a record-breaking 17.8 billion cubic meters delivered during that timeframe (US IEA, 2024; McElhatton, 2023). Eurozone countries also recorded record expenditures of 27 billion euros for Russian LPG. Simultaneously, since June 2022, LPG deliveries from the USA have surpassed those from Gazprom, reflecting a significant realignment of gas supply sources. This evolving landscape has driven the development of additional infrastructure across the EU, the adoption of diversified gas import strategies, and the optimization of logistics. These transformations are evident not only in Germany but also in other economically advanced and gas-import-reliant nations across the EU.

Efforts to reduce dependency on Russian gas imports have occasionally led to tensions among EU member states. For instance, in 2024, relations between Germany and the Netherlands became strained over natural gas exploitation. In response to the evolving geopolitical situation and sanctions against Russia, the Netherlands sought to extract natural gas from the North Sea. However, the proposed extraction site lies within German territory, creating a conflict of interest between the two nations. This disagreement prompted a series of diplomatic engagements and even sparked protests on the streets of Berlin. Negotiations to resolve this dispute are ongoing.

In 2022, the EU initiated a significant gas infrastructure project to enhance energy security and reduce reliance on Russian pipeline gas. As part of this initiative, several critical interconnectors were constructed, including a gas link between Greece and Bulgaria, the Polish-Slovakian interconnector, and the Baltic Pipe, which delivers gas from Norway. Additionally, new floating LNG terminals were established in Germany (European Union - External Publications, 2023). These infrastructure developments aim to bolster the EU's gas supply security, particularly benefiting Central and Eastern Europe, while mitigating the impact of reduced Russian gas imports.

5. Russian gas (re)placement in the East

Following the onset of the conflict in Ukraine, there was a significant reduction and eventual disruption of gas deliveries via the Nord Stream pipeline. Consequently, gas was supplied to Europe through only two remaining routes: one branch of the pipeline transiting Ukraine and another via the Turkish Stream pipeline through Turkey. The European Union's annual gas demand is approximately 400 billion cubic meters, of which only around 10% is met through domestic production. Prior to the escalation of hostilities in Ukraine, the EU imported approximately 150 billion cubic meters of gas - comprising pipeline and LNG deliveries - from Russian suppliers. However, in the aftermath of the conflict, the volume of gas imports from Russia declined sharply to about 43 billion cubic meters. This reduction represents a substantial shift in the EU's energy dependence on Russia, with the share of Russian gas imports decreasing from 45% to 15% of the total supply (Eurostat, 2024; European Union - External Publications, 2023; OPEC, 2023).

The most prominent Russian company whose business scope is closely related to the exploitation, distribution, and marketing of gas is Gazpromneft. It is one of the largest companies in the energy sector that is vertically integrated. As such, this company's business covers a wide range of business operations, including geological exploration, production, transportation, storage, processing, and commercialization of natural gas, gas condensate, and oil. This means that the company is also engaged in the sale of gas as a fuel for vehicles. In addition, the company is also engaged in the production and marketing of heat and electricity. What is important is that this company operates the largest network of distribution channels, or gas pipelines, in the world. The gas pipeline network owned by Gazpromneft is over 178,200 kilometers long, only within Russia. Although it is a joint-stock company by organizational form, according to data from 2021, the ownership structure is dominated by the state with 51% of the shares held by the Russian government. Specifically, 38.37% of the shares are managed by the Federal Agency for State Property Management, while Rosneftgaz owns an additional 11.89% (EU - External Publications, 2023; Eurostat, 2024; Gazprom, 2023).

What stands out as an interesting piece of information, concerns the milestone in the placement of this energy product, which dates back to 2022. Namely, then the Gazpromneft company delivered about 101 billion cubic meters of natural gas, which represents a 45.5% drop in export volumes compared to the previous year, 2021. This, of course, has to do with the beginning of the conflict in Ukraine and the measures introduced by the EU, but also other Western countries. In circumstances with limited possibilities to maintain or improve cooperation with highly developed Western countries, the Russian energy sector and energy companies have started to implement projects with countries in the East more intensively, but also to accelerate the development of cooperation based on partnerships. The decline in gas exports to the EU was compensated by the growth of exports to Eastern countries. This structural change in the volume of exports was accompanied by a fourfold increase in the average price of natural gas on the international market. As most potential new partners from

Eastern countries currently do not have the purchasing power of Western countries, at first glance they seem not to be attractive enough in terms of profitability. In the long term, the size of the territory, the number of inhabitants, and the level of investment in development can certainly indicate that some countries may represent important partners in the future, especially China (Crozet & Hinz, 2020; Government of RF, 2024a). To this should be added that global political aspects should not be ruled out, as well as the desire for the countries of the East to slowly oppose the political and industrial dominance of the countries of the West.

The Russian company Gazprom has already started to increase its gas supplies to China since 2019. Deliveries have been growing in the meantime. Thus, in the first three quarters of 2022 alone, exports from Russia to China increased by 173%. Preparations for even larger gas supplies were coming to an end. Thus, in early December 2022, Chinese media reported that the last section of the southern branch of the Power of Siberia gas pipeline had become operational, in particular in the wider Shanghai region. This development of events provided Gazprom with a strategic opportunity to penetrate a rapidly growing market with significant potential for increasing supply volumes. For major corporations entering expanding markets, the establishment of robust and efficient distribution networks is critical in maximizing the competitive value in the market. The market size with a positive growth rate, particularly in the natural gas sector, must not be underestimated, as China's market provides substantial opportunities for growth and long-term profitability (Gazprom, 2023; Government of RF, 2024a). This is attributable to the substantial investments required in gas distribution, including infrastructure such as pipelines, stations, and measurement facilities, as well as expenditures on land expropriation, consulting, and legal services. These efforts must be strategically oriented toward achieving favorable outcomes in the placement of natural gas within expansive international markets.

Additionally, China stands as the world's largest energy consumer, accounting for an impressive 26% of global energy consumption annually, which exceeds the USA by 35% (Zhang & Chen, 2022; Government of RF, 2024a). Despite this vast demand, natural gas currently comprises only 9% of China's energy mix, whereas coal dominates with a share exceeding 55%. However, China has formally pledged to achieve carbon neutrality under its Green Deal commitments by the beginning of 2060, transitioning away from coal-based energy. Consequently, the utilization of natural gas in China likely see a substantial increase in the coming years as part of this transition.

In 2014, Russia's Gazprom and the China National Petroleum Corporation formalized a 400 billion-dollar agreement for the distribution of natural gas from Russia to China over 30 years. This investment exemplifies a commitment to a sustainable approach. Infrastructure projects of this scale focused on sustainable development through the construction of pipeline networks, should not be viewed as a compromise or conflicting with value creation but rather as complementary to achieving long-term economic and environmental objectives (Zhang & Chen, 2022; McElhatton, 2023). Construction of the infrastructure commenced in 2014, and by 2019, the first segment of the pipeline became operational. The Power of Siberia pipeline spans over 3,000 kilometers, while China's domestic gas pipeline network exceeds 5,000 kilometers. This extensive infrastructure effectively links the world's largest energy exporter, Russia, with the largest energy consumer, China. Between 2020 and early 2024, gas distribution along this route, including shipments of liquefied petroleum gas (LPG), increased from 8 billion cubic meters to 16.5 billion cubic meters. Projections indicate that if annual gas exports reach 38 billion cubic meters in the coming years, Russia would meet approximately 40% of China's current gas demand (Yergin, 2021; Government of RF, 2023). The estimated value of the project is 55 billion dollars, while the pipeline is planned to be used for the transportation of natural gas for 30 years, with estimated revenues of over 400 billion dollars. Russian-Chinese cooperation has

many potentials and opportunities to develop to the greatest scale in business relations in the history of mankind (Yergin, 2021; Government of RF, 2024b). Moreover, Russia has several gas pipelines in its southern regions: Sakhalin 1 and 2 to Vladivostok with a terminal for LPG export; 2. Power of Siberia to Blagoveshchensk, where Amurska is located - a gas processing plant that is the largest gas distributor in Russia. In this way, China will supply gas to the capital Beijing, and further south to Shanghai. In December 2022, the last leg of the pipeline connected to Shanghai was completed; 3. Internal network of gas pipelines in Irkutsk and Krasnoyarsk region (Zhang & Chen, 2022; Government of RF, 2024b).

As shown in Figures 3 and 4, Russia and China plan to build a new gas pipeline network from Irkutsk and Krasnoyarsk, through Mongolia to central and western China and the rest of Asia, as a plan to launch Power of Siberia 2 in 2024. The third gas pipeline originating from Surgut is planned to traverse the west-east corridor along Russia's southern border and the northern Chinese border near the Mongolian-Kazakhstan boundary. This pipeline aims to establish a hub by connecting with the existing pipeline that extends from Turkmenistan to Shanghai. Upon completion of these two additional gas pipeline routes, Russia will gain access to numerous emerging markets across Asia, encompassing a population exceeding 3.5 billion people (Yergin, 2021; Zhang & Chen, 2022; Government of RF, 2024b).

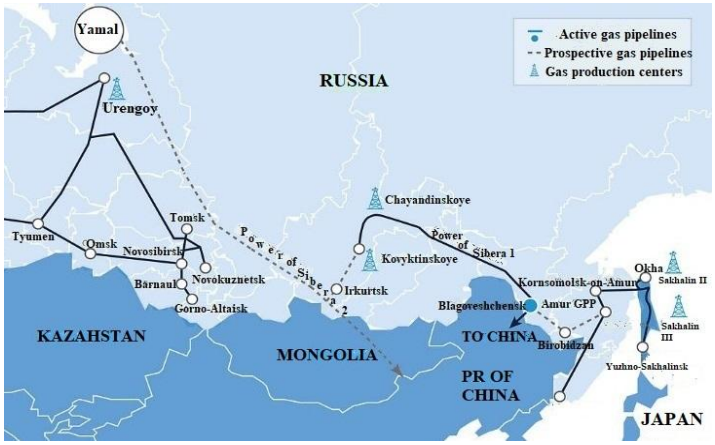

Figure 3. Gas pipeline network in the south border region of Russia
Source: Authors

Figure 4. Gas pipeline network in the border regions of Russia and China
Source: Authors

In September 2022, following prolonged negotiations among member states, the European Commission reached a consensus to implement a gas price ceiling set at €180 per megawatt-hour (MWh). This decision was likely facilitated by the EU's success in achieving 95% capacity in its gas storage facilities during the same period. While the measure may provide a degree of market stability and shield consumers from excessive energy costs, it is not without significant risks.

The imposition of such a price cap could potentially undermine supply security by disincentivizing suppliers from delivering gas at capped rates, especially in a highly competitive global market. Additionally, it raises concerns regarding the potential depletion of gas stocks if consumption outpaces replenishment under the constrained pricing framework. This dynamic poses challenges for maintaining a balanced energy strategy, especially amid fluctuating global demand and ongoing geopolitical tensions impacting supply chains. As such, the decision reflects a complex trade-off between short-term economic relief and long-term energy security considerations (European Court of Auditors, 2022). Such a decision disturbs the supply and demand relations in this regional gas market, and it is not exclusive that this decision can additionally motivate Gazpromneft to prioritize the sale of gas to the Chinese market (Kovač & Popović, 2013; Center on Global Energy Polocy, 2024). When the market does not influence price regulation, it necessarily leads to potential disorder in the supply chain and deciding who will get the available quantities of gas at this price. Such a decision will be put to the test already in the second half of 2023 when the stored capacities will already begin to create stocks for the upcoming winter.

6. Conclusion

The recent years have been marked by profound global challenges, ranging from armed conflicts and the migrant crisis to the COVID-19 pandemic. Among these, the war in Ukraine has had an especially destabilizing impact, shaking the foundations of the European Union (EU) and the global order. The consequences have been multi-faceted, with the increased costs of fuel, food, transportation, and other essential goods disproportionately affecting vulnerable populations. However, these economic burdens pale in comparison to the human cost of lost lives and the long-term disruptions to international relations.

The EU, particularly dependent on Russian oil and natural gas, has emerged as one of the most exposed regions to the consequences of the Ukraine conflict. The transition away from Russian energy sources has proven to be a monumental challenge, as replacing Russian natural gas in the short and medium term is impractical. The energy price spikes in 2022 and 2023 have not only driven inflation across the region but also tested the resilience of its economies. In response, the EU and its member states have demonstrated a willingness to endure economic hardships, including reduced purchasing power, to uphold their stance on sanctions and reduce reliance on Russian energy.

Among the EU member states, Germany finds itself at the epicenter of this transformation due to its substantial economic ties with Russia, being both the largest importer and exporter in these relations. The Russian Federation, while still the EU's fifth-largest trading partner, has seen its role diminish as the EU pivots toward diversifying its energy sources and exploring new trading partnerships. However, this shift will come at a significant cost, with Germany and its citizens likely bearing the brunt of the economic repercussions. Yet, this adversity may bring about a silver lining by accelerating the EU's commitment to implementing the Climate Change Agreement and transitioning to renewable energy sources.

Globally, the situation has also realigned energy partnerships. China, which aims to achieve carbon neutrality by 2060, is poised to increase its reliance on natural gas as a transitional

energy source. This shift presents opportunities for Russia, which is likely to deepen its energy ties with China to compensate for the decline in its exports to the EU. Although Russian gas revenues increased significantly in 2022 due to elevated prices, this was despite a 55% drop in physical exports to the EU. This highlights the fragility of Russia's economic position in the face of shrinking markets and escalating sanctions.

The broader implications of this energy and economic realignment cannot be overstated. Rising energy and food prices have eroded household purchasing power across Europe, undermined consumer confidence, and raised the specter of civil unrest, food shortages, and inflation-induced recessions. The uneven capacity of EU member states to manage these crises, coupled with disparities in citizen vulnerabilities, underscores the need for coordinated policies to mitigate the risks and ensure an equitable transition.

In conclusion, while the current challenges are severe, they also present an opportunity for the EU and its global partners to accelerate their efforts toward energy diversification and sustainability. The unfolding energy crisis may ultimately serve as a catalyst for reshaping global energy policies, fostering innovation, and promoting greater resilience in the face of future geopolitical and economic shocks.

Acknowledgments

This paper is part of the project 101082187: Transport of Dangerous Goods - Modernization of Curricula and Development of Trainings for Professionals in the Western Balkans HEIs / DGTRANS ERASMUS-EDU-2022-CBHE-STRAND-2, funded by the European Union. Usual disclaimers apply.

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