How EU Gas Hubs will be affected after the sanctions on Russia will end?

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Abstract

This paper explores the potential implications for European Union (EU) gas hubs if sanctions on Russian natural gas are lifted. Employing a qualitative, scenario-based methodology, the paper investigates three possible developments: a partial reintroduction of Russian gas supplies, the continuation of the current LNG-dominated structure, and the evolution of a hybrid market model combining multiple sources and pricing mechanisms. The research draws on a wide range of institutional reports, academic literature, and official policy documents to analyze recent transformations in the European energy landscape. Findings indicate that although the return of Russian gas could enhance supply volumes and reduce short-term price volatility, the EU's broader strategic shift toward diversification, LNG infrastructure expansion, and reduced dependency on politically unstable suppliers has reshaped the market's structure. Moreover, the geopolitical dimension of energy has become increasingly significant, influencing both investor confidence and long-term planning. Gas hubs are now seen as critical elements not only in pricing but also in ensuring supply security and market stability. Consequently, even if Russian gas flows resume, a return to the pre-2022 energy configuration appears unlikely. Instead, European gas hubs will continue evolving as strategic platforms within a more decentralized, resilient, and geopolitically aware energy system. The paper offers insights that may inform future energy strategies and policymaking in the region.

Keywords: EU gas hubs, LNG, Russian gas, energy security, market transformation, TTF, sanctions

Introduction

Following large scale aggression of Russia against Ukraine in 2022, the European Union (EU) imposed comprehensive economic sanctions against Russia, one of the most critical aspects of which was energy imports. For decades, Europe has been heavily dependent on Russia for its energy supply, especially natural gas. According to the European Council, in 2021, Russia accounted for around 40% of the total natural gas imports of the EU countries. However, after the war, this dependence was considered a serious weakness in terms of energy supply security and EU countries diversified their supply sources, resulting in a decrease of up to 11% by 2024 (European Council, 2025).

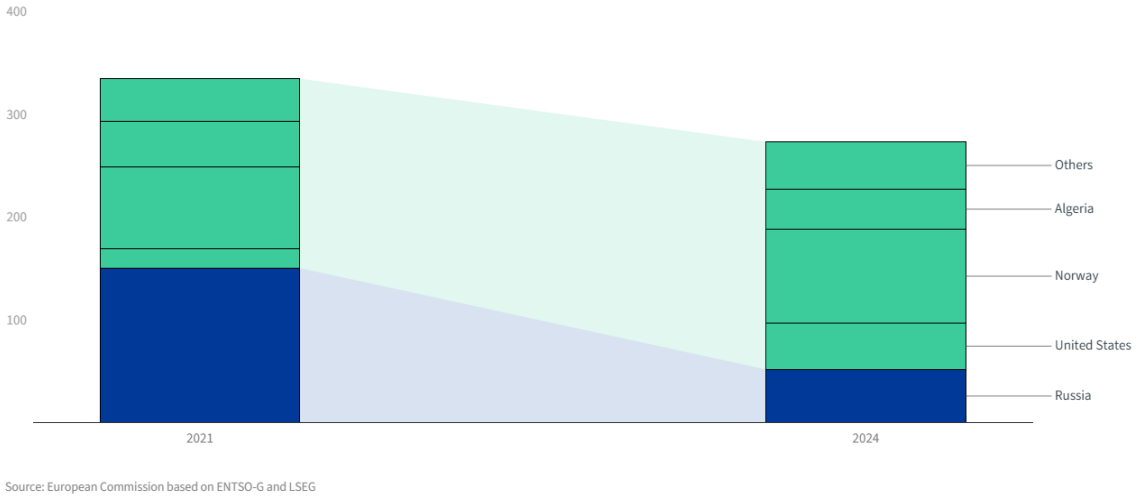

Figure 1. Gas Imported by the EU (European Council, 2025)

In this regard, EU quickly turned to alternative LNG suppliers and LNG imports increased significantly thanks to agreements with countries such as the USA, Qatar and Algeria. At the same time, the role of gas hubs, where gas is traded and market prices are set, has been redefined. Many hubs, notably the Title Transfer Facility (TTF) in the Netherlands, have faced unstable pricing structures due to fluctuations in supply-demand balances (Barner et al., 2025). The functionality and sustainability of these hubs became a key determinant for the future of European energy markets in the post-war period.

The prospect of sanctions being lifted further complicates this transformation process. The resumption of natural gas imports from Russia could directly affect existing LNG supply chains and the gas price structure. However, there have been lasting changes in Europe's understanding of energy security and long-term strategic orientations. Many countries have shifted towards energy independence, domestic production & renewable investments and reshaped their energy infrastructure (Kuzemko et al., 2022). Thus, the end of sanctions is not only a political decision, but also a multi-layered one that will have a decisive impact on market structures, competition and geopolitical balances.

The aim of this study is to analyze how the natural gas trading hubs operating in the EU will be affected if sanctions against Russia are lifted. In this framework, the vulnerabilities of the current system and possible transformation scenarios will be discussed, considering factors such as gas supply, price stability, LNG infrastructure and regional trade relations. The study concludes with an assessment of whether a new equilibrium can be established in the European energy markets and the role of gas trading hubs in this equilibrium.

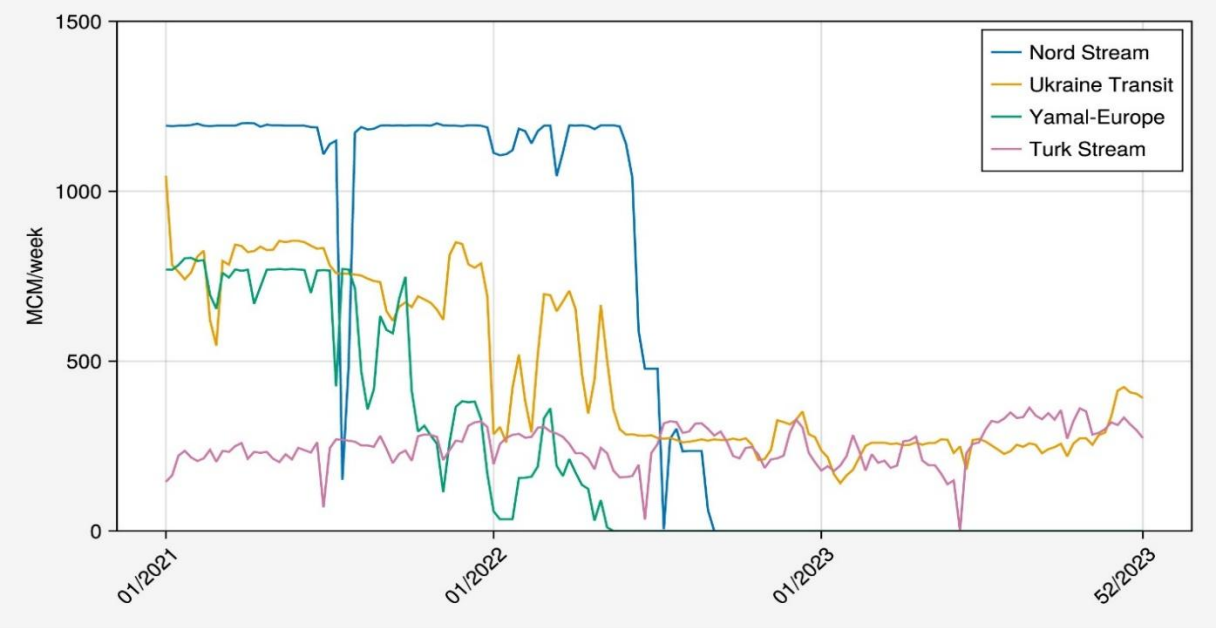

Figure 2. Russian Natural Gas Exports to Europe between 2021 and 2024 by Route (Barner et al., 2025)

Methodology

This study adopts a qualitative research methodology to understand how natural gas trading hubs operating in the EU would be affected if energy sanctions against Russia were lifted. The study is designed in an explanatory and predictive framework, applying a scenario-based analysis approach considering multi-layered geopolitical, economic and structural dynamics (Siddi, 2022). Based on current and comprehensive sources in the literature, an assessment has been made on the transformations in the European energy market, especially in the post-2022 period, the development of LNG infrastructure, the role evolution of gas hubs and the change in market structures.

Statistical reports, policy documents and academic studies published by reputable institutions such as the European Council, International Energy Agency (IEA) and Energy Information Administration (EIA), were used as data sources (EIA, 2025; European Council, 2025; IEA, 2025b). The qualitative data obtained from these documents were systematically analyzed through content analysis and themes (e.g. price stability, infrastructure capacity, etc.) were created to reveal the uncertainties and opportunities for the future of gas hubs.

In addition, the assessment focused on three main scenarios:

- partial return of Russian gas,
- maintenance of the current LNG based structure,
- development of a new hybrid market structure.

Each scenario is comparatively analyzed in the context of Europe's energy security strategies and the adaptive capacity of market players.

In conclusion, the methodological approach of the study aims to assess the transformation of the energy market from a multidimensional perspective in a period of intense political uncertainty and to provide policymakers with insight-based contributions. Therefore, the

methodology used both provides a comprehensive assessment of current developments and a meaningful basis for decision makers through the analysis of probabilistic scenarios for the future.

Comparison of New Literature

European natural gas markets have undergone a significant transformation over the last two decades. In this process, the gas hubs can be considered an important part of the transition to the free market. The Title Transfer Facility (TTF) in the Netherlands has become Europe's main price reference point and has become a determinant in both regional and global LNG contracts. However, the price signaling capacity of TTF has come into question in the post-war period (Barner et al., 2025).

Russia's aggression against Ukraine and the subsequent sanctions have brought the concept of energy supply security to the forefront of the EU's political agenda. Documents such as the "REPowerEU" plan announced by the European Commission and the IEA's recommendations for this plan propose various strategies to increase the energy supply security of EU and reduce dependence on Russia. These strategies include increasing the supply of LNG, accelerating renewable energy investments and taking energy efficiency measures (European Commission, 2022; IEA, 2022). In this context, the expansion of LNG terminals, alternative pipelines and east-west capacity increases are frequently emphasized structural changes.

The rapidly growing role of LNG has put the dependence of gas hubs on physical infrastructure back on the agenda. European Union Agency for the Cooperation of Energy Regulators (ACER, 2024), while analyzing the impact of the acceleration of LNG infrastructure investments in Europe on pricing mechanisms, noted that LNG could play a role in increasing spot market volatility. This view is in line with the post-war volatility increase in TTF.

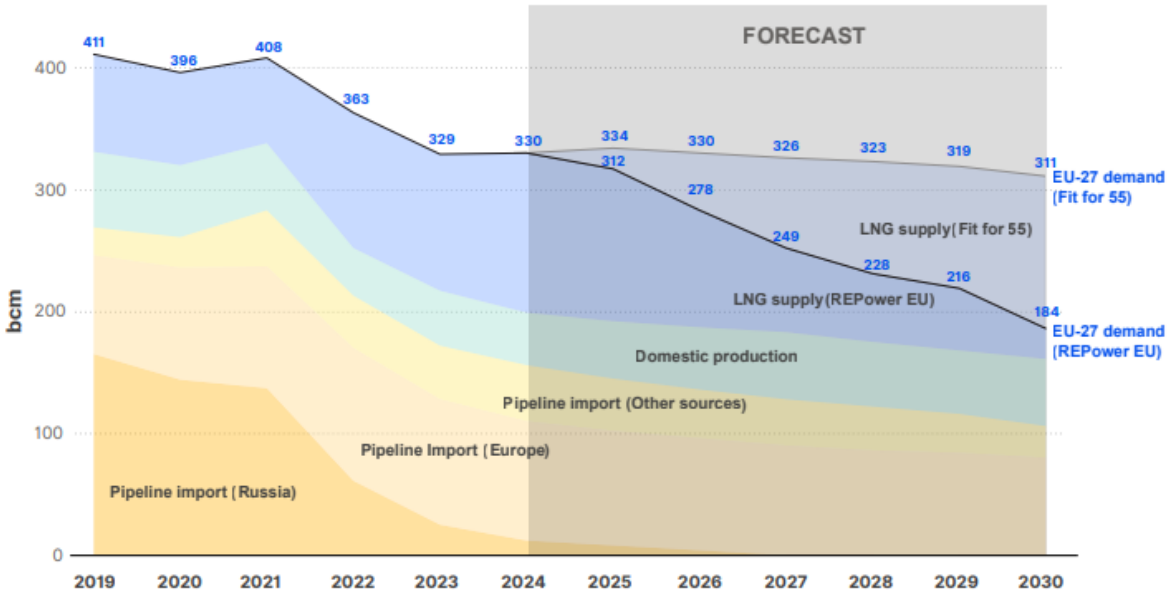

Figure 3. EU gas supply and demand outlook and assessed LNG supply needs relative to Fit For 55 and REPowerEU scenarios by 2030 (bcm) (ACER, 2024)

On the other hand, the geopolitical character of gas has been reshaped as Russia has lost its weight in European markets after the sanctions. Energy is now considered not only as an economic but also as a strategic and security-oriented factor. This has resulted in trading hubs becoming not only market instruments but also actors of energy diplomacy. The EC's REPowerEU plan can be seen as a reflection of this transformation (European Commission, 2022).

The possibility of sanctions being lifted further complicates this multi-layered transformation. (Kuzemko et al., 2022) analyzing the scenarios in case Russian gas re-enters the European market, emphasize that long-term supply agreements and gas price indices will be decisive in this process. Moreover, it is argued that a reorientation towards Russian gas carries risks in terms of market reliability and investor perception.

Finally, there are different views on the future of gas hubs in the literature. While some argue that existing hubs will strengthen and pioneer new market norms (OIES, 2022), others suggest that TTF, in particular, may weaken and regional hubs (e.g. CEGH, VTP Germany) may come to the fore (Heather, 2023). These debates form the theoretical background for the main research question of the study, "How EU Gas Hubs will be affected after the sanctions on Russia will end?".

Main Analysis/Discussion

The transformation of the natural gas market following the energy sanctions of EU against Russia has directly affected the function and structure of gas trading hubs. These hubs have become not only price-setting points, but also structures that provide security of supply, market liquidity and resilience against geopolitical risks (ACER, 2024; Heather, 2023). The lifting of sanctions is an important threshold that will test the extent to which this transformation is permanent and the resilience of existing hubs.

Security of Supply and Supply Flexibility

The European gas market has experienced a significant transformation in recent years, marked by shifting import patterns and supply diversification efforts. Between 2021 and 2024, Russian pipeline imports to the EU fluctuated due to geopolitical tensions and the bloc's strategic push to reduce dependence on Russian gas, while LNG's share of EU imports grew from 33% to 40%, underscoring the rising importance of liquefied natural gas, particularly from the US, in meeting energy demand. Although the pipeline share of EU imports declined from 67% to 60%, the Russian share within pipeline imports saw a slight 6-percentage-point increase, suggesting a partial resurgence in certain markets. The potential re-entry of Russian gas could temporarily ease physical congestion in key hubs like Germany's VTP and Austria's CEGH by increasing supply and liquidity (OIES, 2022), but this contradicts the EU's long-term energy security objectives. Through initiatives like REPowerEU and partnerships with alternative suppliers such as Norway and Azerbaijan (European Commission, 2022), the EU has institutionalized its commitment to diversified supply sources. As a result, any return of Russian gas is more likely to redefine market competition than restore systemic flexibility, as the bloc remains focused on

minimizing reliance on single-source energy supplies – a trend clearly reflected in the evolving balance between pipeline and LNG imports shown in the data.

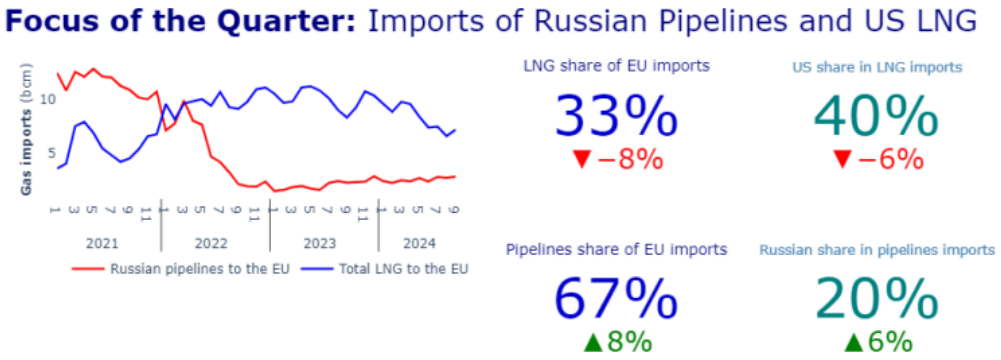

Figure 4. Natural Gas Import of EU Q3, 2024 (European Comission, 2024)

Price Mechanism and the Position of TTF

In the post-war period, TTF was subject to high volatility under the pressure of LNG pricing and lost some confidence of market participants (Barner et al., 2025). The return of Russian gas could lead to reduced supply pressure and limit price volatility in TTF. However, this does not mean that TTF will permanently regain its status as the single price reference point across Europe. The capacity of regional hubs (e.g. CEGH, PEG, VTP Germany) to provide an alternative to TTF in terms of stability and infrastructure has been strengthened (Heather, 2023). In this context, regionalization of prices and a reorientation of the market towards a polycentric structure are likely.

Sustainability of LNG Infrastructure and Political Will

The European gas market has undergone a fundamental transformation following the sharp decline in Russian pipeline imports after 2022. As the data shows, this supply shock triggered a massive surge in LNG imports, with EU countries rapidly building new infrastructure like FSRUs and securing long-term contracts with global suppliers. While markets are gradually rebalancing in 2023-2025, the structural shift toward LNG has become entrenched through substantial infrastructure investments and contractual commitments. Even if Russian pipeline flows were to partially resume, the EU's energy landscape has been permanently altered - LNG now accounts for a significantly larger share of imports and serves as a key pillar of energy security. This transition has created a more diversified and resilient gas supply system, though it comes with the challenge of adapting to global LNG market dynamics and price volatility. The data confirms that Europe's strategic pivot away from Russian pipeline dependence represents a lasting structural change in the continent's energy supply paradigm.

Figure 5. Year-on-year change in key piped natural gas trade and global LNG supply, 2019-2025 (IEA, 2025a)

Geopolitical Perception and Investor Confidence

Confidence in energy markets is not only related to the supply-demand balance, but also to political stability and predictability. Even if sanctions are lifted, many market actors will be cautious about reorienting towards Russian gas (Kuzemko et al., 2022). This cautious approach is particularly critical for investor confidence. As investments in areas such as domestic production, green transition and energy efficiency are determined by the long term strategies of gas hubs, gas trading hubs will be redefined not only by changes in supply sources but also by the strategic decisions of market actors.

The Search for New Equilibrium and Future Scenarios

Considering all these dynamics, European gas trading hubs will not fully return to the pre 2022 structure even if sanctions are lifted. The sanctions have led to a repositioning of gas not only as an economic commodity but also as a strategic tool. This suggests that the functions of gas hubs will be much broader than just price setting. In the future, scenarios such as inter-hub division of labor, regional specialization based on supply orientations and hybrid pricing models may come to the fore in the European market (Heather, 2023).

Conclusion

This study aims to analyze how EU Gas Hubs will be affected after the sanctions on Russia will end. The findings suggest that the end of sanctions may contribute to short-term price stabilization by increasing gas supply but cannot completely reverse the structural transformation that has taken shape in the European energy market in recent years. The EU has taken extensive steps towards LNG infrastructure, diversification of supply sources and strengthening regional hubs to enhance energy security after 2022 (European Commission, 2022). These efforts should be considered as a long-term strategic orientation, not just temporary crisis management.

The future of gas trading hubs will be shaped not only by the supply side, but also by the reliability of price mechanisms, sustainability of infrastructure investments and strategic decisions of market actors. The return of Russian gas may increase transaction volumes in certain hubs, but this is directly related to their structural competitiveness and perception of geopolitical risk (Barner et al., 2025; Kuzemko et al., 2022). Moreover, the ability of hubs such as TTF to regain their position as the dominant price setter across Europe may be limited by market regionalization trends and investors' long-term expectations.

All in all, the lifting of sanctions alone will not trigger a radical turnaround in the European gas market. On the contrary, in an energy system evolving towards a polycentric, flexible and diversified structure, gas trading centers will have to redefine their functions in search of a new balance. In this process, it is critical for policymakers to provide a stable and predictable regulatory framework to maintain the resilience of the markets.

Scenario Summary:

- **Scenario 1:** Partial return of Russian gas, possibly increasing supply volumes in the short term.
- **Scenario 2:** Continuation of the current LNG-based system supported by recent infrastructure investments.
- **Scenario 3:** Development of a hybrid market structure with regional hubs and diversified sources.

Policy Recommendations:

- Maintaining and expanding LNG infrastructure to ensure long-term flexibility.
- Avoiding overdependence on any single supplier, especially those with geopolitical risk.
- Strengthening regional hubs to promote resilience and market balance.
- Supporting regulatory predictability to boost investor confidence.
- Fostering EU-wide cooperation in energy security and infrastructure planning.

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