DOI: 10.53477/3045-2309-26-03

FROM POST-COLD WAR INTERDEPENDENCE TO STRATEGIC DECOUPLING: REDUCING THE EU'S DEPENDENCE ON ENERGY RESOURCES FROM THE RUSSIAN FEDERATION (2022-2025)

Aurel LAZĂR, PhD,
Teaching Assistant, "Petru Maior" Faculty of Science and Letters,
"George Emil Palade" University of Medicine, Pharmacy, Science, and Technology,
Târgu Mureș, Romania,
E-mail address: lazar.a.aurel@gmail.com

Abstract: *This article examines, through the lens of energy security understood as resilience, the European Union's accelerated decoupling from Russian energy resources between 2022 and 2025, against the backdrop of energy's transformation from a largely economic commodity into a geopolitical instrument in post-Cold War Europe. Russia's full-scale invasion of Ukraine in 2022 catalysed a strategic rupture with the interdependence paradigm consolidated over previous decades, prompting the EU to adopt REPowerEU, mandatory storage and coordinated demand-reduction measures, and successive sanctions packages. Empirically, EU imports of Russian gas declined, aggregate gas demand fell over 2021-2024, and Russia's share of EU crude oil imports dropped sharply. The case studies (Germany; Poland and the Lithuania; Italy; and South-Eastern Europe, including Romania) highlight divergent national pathways, while the risk assessment section addresses persistent dependencies (Hungary and Slovakia) and the challenge of circumvention via intermediaries, swaps, and hub-based transactions.*

Keywords: *energy security; dependence; REPowerEU; resilience; Russian Federation; natural gas.*

Introduction

In 2022, energy security became a strategic priority for the EU, against the backdrop of the Kremlin's use of energy as a geopolitical instrument and the disruption of supply chains. The challenge was not merely the level of consumption, but also the configuration of infrastructure. The European energy market was integrated, yet characterised by sharply asymmetric regional dependencies, particularly along the East–West axis. Prior to this shock, Russian gas held a structurally significant share in the EU's import mix, which meant that replacing it required simultaneous interventions on both the supply side (new routes, LNG imports, alternative contracts) and the demand side (conservation measures, energy efficiency, fuel switching). The energy crisis triggered in 2022 underscored the tight linkage between energy security and economic security. It demonstrated how energy price volatility rapidly feeds into inflation, undermines industrial competitiveness, and generates substantial social costs. The relevance of this research is therefore twofold.

Theoretically, the article tests the hypothesis that reducing dependence on a dominant supplier increases the resilience of the energy system, yet may also produce new forms of dependency and transition costs. Practically, its findings can inform the design of more robust energy security policies in a volatile global environment.

Throughout this study, the intention is to provide as precise an answer as possible to the following research question: *To what extent, and through which mechanisms, did the EU succeed in reducing its dependence on energy resources originating in the Russian Federation between 2022 and 2025, and what new vulnerabilities emerged as unintended side effects of this process?* The analysis proceeds from the hypothesis that EU policies – such as the REPowerEU plan and the emergency measures adopted in the gas market – substantially reduced exposure to supply shocks originating in the Russian Federation, while transferring part of the risk to: (a) the global liquefied natural gas (LNG) market and associated price volatility; (b) infrastructure constraints and administrative-capacity limitations (for example, slow permitting procedures for new projects); and (c) industrial dependencies embedded in the supply chains required for the energy transition (European Commission 2022, 11-12).

From a methodological point of view, the study employs a combined research design. (1) It conducts a documentary analysis of the EU energy security framework, including European Commission communications, relevant regulations, Council of the EU materials, and Eurostat data, complemented by selected national sources. (2) It applies a descriptive statistical analysis of key indicators of energy imports, consumption, and storage in order to capture quantitative developments over 2021–2025. (3) It selects a set of representative national case studies based on the diversity of initial conditions and policy instruments (e.g., LNG infrastructure investment, interconnection levels, the existence of alternative contracts). The research draws on data and reports produced by European and national institutions, regulatory authorities, energy-sector companies and major international news agencies. With respect to limitations, several points should be noted, international trade data are typically released with a time lag and may be subject to subsequent revisions.

Theoretically, the analysis relies on the concept of energy security because reducing the EU's dependence on Russian resources is not simply a question of where the energy is purchased from, but rather a systemic risk issue - namely, how vulnerable a state or the EU as a whole is to supply disruptions, price shocks, or geopolitical pressure. The concept captures the capacity of an energy system to deliver energy reliably and predictably across multiple dimensions: physical availability, geopolitical accessibility, economic affordability (price level and volatility), and acceptability (environmental sustainability and social legitimacy). A key implication is that a given policy can enhance security along one dimension (e.g., greater physical availability) while simultaneously undermining it along another (e.g., higher costs), thereby generating policy dilemmas for decision-makers (Cherp Jewell 2014, 415-421).

In this paper, energy security is treated as resilience: the capacity of an energy system to withstand and adapt to shocks without undermining essential socio-economic functions, while the pre-2022 EU–Russia relationship illustrates how apparent stability was achieved at the cost of elevated geopolitical risk through the concentration of dependence. Energy dependence arises when there are no readily available alternatives to replace a supplier or route and adjustment costs are high; accordingly, what matters is not only the share of imports, but also the underlying infrastructure (pipelines/LNG), contractual arrangements, storage capacity, and the degree of interconnection (European Commission 2022, 11-12). In the EU's approach, diversification and solidarity within the internal market constitute structural instruments of energy security, reflected in the Energy Union strategy and in the legal framework governing solidarity in crisis situations (European Union 2017).

1. The Dynamics of Dependence: From Concentration to Diversification (2021-2025)

A concise indicator of Europe's energy reorientation is the sharp decline in the volume of gas imported from Russia. EU imports of Russian gas fell from more than 150.2 billion cubic metres (bcm) in 2021 to below 51.7 bcm in 2024. Over the same period, EU gas imports from the United States increased from 18.9 bcm to 45.1 bcm, while imports from Norway rose from 79.5 bcm to 91.1 bcm. This shift was enabled in part by the high flexibility of liquefied natural gas (LNG), as the EU rapidly expanded LNG imports, with the United States emerging as the dominant supplier. In Q3 2025, the United States accounted for approximately 59.9% of the EU's total LNG imports, whereas Russia supplied only 12.7%. Compared with Q3 2024, U.S. LNG imports were 19.1% lower and imports from the Russian Federation were 5.2% higher. Despite this decline, the Russian Federation remains the EU's second-largest LNG supplier, Russia's share of the EU's pipeline gas imports fell to approximately 11%; when LNG is included, Russia accounted for under 19% of the EU's total gas imports, compared with over 40% in 2021. By contrast, Norway became the leading supplier, providing more than one-third of the EU's total gas imports, around 91.1 bcm in 2024 (Council of the European Union 2025a).

The reduction in dependence on Russia was also underpinned by a contraction in domestic demand: EU gas consumption fell by more than 19% between 2021 and 2024. This demand-side adjustment, together with expanded storage capacity and more intensive use of gas stocks, helped strengthen the EU's supply resilience and reduced exposure to Russian deliveries. From a security perspective, lower demand reduces the likelihood of a physical gas shortage and diminishes a dominant supplier's ability to influence prices by constraining supply (European Union 2017).

In the oil segment, the impact of EU sanctions against Russian Federation is particularly pronounced: Russian Federation's share of EU imports of crude oil and petroleum products fell from 28.74% in Q1 2021 to 1.26% in Q3 2025. This indicator captures both the redirection of supply towards alternative producers and the near-complete curtailment of Russian imports in the segments covered by sanctions (Eurostat 2025, "EU Trade with Russia – Latest Developments," 1-3). Nevertheless, a residual dependence on Russian LNG persists: although its share declined – from 22.24% in Q1 2021 to 14.98% in Q3 2025 - Russia remains a relevant LNG supplier for Europe. This residual exposure has led the EU to place the issue on the agenda and to negotiate an explicit phased-out approach to Russian LNG imports (Council of the European Union 2025b).

2. EU Strategy: From the "Energy Union" to REPowerEU and Emergency Regimes

The EU's approach to energy security displays a notable degree of institutional continuity. The Energy Union Strategy (2015) already set out the principal dimensions of European energy policy - energy security, solidarity and trust; an integrated internal energy market; energy efficiency and decarbonisation; and research, innovation, and competitiveness. The 2022 crisis accelerated the pursuit of these objectives and made explicit the nexus between energy policy and the Union's strategic autonomy (European Commission 2015).

In response to the 2022 crisis, the EU entered a new phase with the launch of the REPowerEU Plan (May 2022), which constitutes the strategic framework through which the Union sought to end dependence on Russian energy via an integrated approach combining energy savings, diversification of import sources, and an accelerated shift to clean energy. The document stresses that no single member state can manage such a transformation independently within an interdependent energy market, thereby underscoring the need for EU-level coordination. In practical terms, from 2022 onward the EU simultaneously introduced a package of emergency measures comprising: (a) mandatory rules on gas storage; (b) mechanisms for coordinated demand reduction; and (c) EU-level instruments for cooperation and solidarity (including joint purchasing and demand aggregation platforms, as well as regional support arrangements). Taken together, this package functions as a form of collective insurance against supply-disruption risk and as a tool for mitigating market volatility by disciplining – and, where necessary, reducing – demand (Council of the European Union 2022).

3. National Strategies and Case Studies

The EU provided a common framework through the adoption of rules, coordination mechanisms, and Union-wide targets; however, the effective reduction of dependence on the Russian Federation ultimately materialised through nationally tailored policies implemented by individual member states. Accordingly, some states invested heavily in LNG import infrastructure, others maximised the use of existing pipelines connected to alternative suppliers, while another group prioritised regional interconnections in an effort to "import" energy security from neighbouring markets. This section offers a comparative analysis of four national and regional case studies (Germany; Poland and Lithuania; Italy; and South-Eastern Europe) in order to highlight divergent approaches and the lessons derived from them.

Germany – LNG as a transitional solution and demand-side management

Germany constitutes a critical case study because, prior to 2022, it was among the EU member states most exposed to Russian pipeline gas; after 2022, it was compelled to replace these volumes rapidly by combining supply-side diversification (above all through LNG imports) with domestic demand reduction measures. The overarching objective was to limit both the risk of supply disruptions and the associated macroeconomic shocks.

In 2023, Germany's total gas imports amounted to approximately 968,000 GWh, with the main suppliers being Norway (about 43% of total imports), the Netherlands (26%), and Belgium (22%). These figures illustrate Germany's capacity to diversify its supply base swiftly and highlight the importance of West European "hubs" (notably the Netherlands and Belgium) in sustaining German supply through cross-border flows. On the LNG dimension, Germany operationalised new import entry points in record time: the floating terminal at Wilhelmshaven became operational in December 2022, followed in early 2023 by terminals at Lubmin and Brunsbüttel, and by Stade in December 2023. In 2023, gas imports via these LNG terminals totalled approximately 69,656 GWh – around 7% of Germany's total gas imports – underscoring LNG's role as a "safety net" in the transition away from Russian gas (Bundesnetzagentur 2024).

In 2024, Germany's total gas imports declined, amounting to 865,000 GWh. The new context shows that, Norway strengthened its position (48%) ahead of the Netherlands (25%) and Belgium (18%); LNG inflows totalled 69,000 GWh (≈8%) via terminals in Wilhelmshaven, Brunsbüttel, Lubmin and Mukran, confirming LNG's consolidation as a structural backstop rather than a short-term emergency measure (Bundesnetzagentur 2025). In 2025, imports increased to 1,031 TWh, with the same supplier triad remaining dominant – Norway (44%), the Netherlands (24%) and Belgium (21%) – while LNG rose to 106 TWh (10.3%), reinforcing the shift toward an LNG-and-hub-based supply architecture (Bundesnetzagentur 2026).

On the demand side, Germany also achieved a substantial adjustment in consumption: in 2023, German gas use was approximately 17.5% below the 2018-2021 average. From an energy-security perspective, this reduction lowers the country's exposure to potential supply disruptions; from an economic perspective, however, it raises questions about the impact on energy-intensive industrial sectors − specifically, whether lower gas consumption reflected reduced output in these industries and what long-term costs such an adjustment may entail.[1]

Poland and Lithuania – rapid exit from Russian gas through infrastructure and political decision-making

Poland illustrates a case in which political will and infrastructural planning aligned effectively under crisis conditions. In 2022, amid contractual tensions with Gazprom (Plucinska and Strzelecki 2022) and the imminent risk of supply disruptions, Polish authorities accelerated measures to eliminate Russian gas (Polish Governement 2022), redirecting the country towards alternative sources and strengthening energy security through diversified supply routes. A key enabler for the wider region (Central and Eastern Europe) was the development of infrastructure that ensured access to alternative sources and to the North European/Atlantic market. In the logic of REPowerEU, projects such as the Baltic Pipe (linking Denmark and Poland) and the Gas Interconnection Poland-Lithuania (GIPL) are highlighted as investments that enhance connectivity and source diversification, thereby reducing the risks associated with dependence on a single dominant supplier (European Commission 2022, 11-12).

Lithuania also provides a striking example of near-complete dependence reduction through LNG. In April 2022, Lithuania announced that it would cease all imports of Russian gas for domestic

[1] *Ibidem*.

consumption, relying instead on its own LNG import terminal at Klaipėda. From an energy-security perspective, the case demonstrates how a strategic investment in LNG import capacity can rapidly eliminate a major geopolitical vulnerability (Lithuanian Government 2024).

The broader regional takeaway from Poland and the Baltic States is that the development of adequate infrastructure – both LNG terminals and gas interconnections -expands supply options and reduces the scope for coercion by a monopolistic supplier. At the same time, these solutions often involve high upfront costs and require coordination with neighbouring markets in order to function optimally, particularly in terms of cross-border flows, capacity allocation, and the harmonisation of market rules.

Italy – "portofolio diversification" strategy

Italy pursued an energy-security strategy centred on maximising the use of its existing import infrastructure and expanding cooperation with alternative suppliers in the Mediterranean. A salient example is the agreement signed in April 2022 between the Italian company Eni and Algeria's Sonatrach to increase natural gas deliveries through the Transmed pipeline, with a gradual additional volume of up to 9 bcm per year in 2023-2024 (Eni 2022a). From an energy-security perspective, the principal advantage of this approach lies in its speed of implementation: leveraging an existing transport route such as Transmed enables a relatively rapid increase in imports, compared to the longer timelines required for building entirely new infrastructure. At the same time, the strategy entails the risk that dependence is merely shifted to another supplier, making long-term success contingent on Algeria's political stability and production capacity.

Italy's post-2022 gas diversification should not be read as a one-for-one "Russia for Algeria" substitution only. Alongside higher Algerian pipeline and LNG inflows, Rome also leaned on other Mediterranean vectors, notably Libya (pipeline) and Egypt (LNG). On the pipeline side, Libya remains a structural option via Greenstream, even if actual flows have been volatile: ARERA/MASE data show Italian gross imports from Libya declining from 2.5 bcm (2023) to 1.4 bcm (2024, pre-final), highlighting the *political-security risk premium* attached to this corridor (ARERA 2025, 62; Honoré 2023, 3-4). On the LNG side, Italy sought to mobilise Egyptian LNG through upstream and liquefaction-linked arrangements. Eni and EGAS agreed in April 2022 to maximise Egyptian gas production and LNG exports, explicitly aiming to support deliveries to Europe "and specifically to Italy," with LNG cargoes in Eni's portfolio "bound to Europe and Italy" for volumes up to ~3 bcm in 2022 (Eni 2022b). A complementary Mediterranean hedge was the effort to underpin future Libyan export availability through new upstream investment - Eni and Libya's NOC launched the "Structures A&E" project (January 2023), framed as increasing gas for Libya and "to ensure export to Europe", with Italy as the most proximate outlet (Eni 2023).

Accordingly, Italy – much like the EU as a whole – has pursued "portfolio diversification", seeking to avoid a one-for-one substitution of one dominant supplier with another and instead to distribute risk across multiple import sources.

South-Eastern Europe – interconnections and LNG access to reduce historically rooted vulnerability

In South-Eastern Europe, reducing dependence on Russian gas depends to a large extent on improving regional connectivity. A flagship project in this regard is the Greece–Bulgaria Interconnector (IGB), designed to diversify supply by providing access to Azerbaijani gas and to LNG imported via Greece. IGB was conceived with an initial capacity of approximately 3 bcm per year (with the possibility of a subsequent expansion to around 5 bcm per year) and represents an important step toward deeper integration of gas markets in South-Eastern Europe (ICGB 2025). In addition, regional FSRU terminals (floating storage and regasification units), such as the project at Alexandroupolis, Greece, are viewed as critical infrastructure for the region because they create alternative entry points for natural gas into countries with limited pipeline-based supply options (Gastrade 2025a); the broader strategic rationale is the continuous increase – within infrastructural constraints – of the volumes processed and transported (Gastrade 2025b). From an energy-security standpoint, such terminals enhance system redundancy and reduce disruption risk by diversifying available import routes and sources.

Romania started from a relatively favourable position, with net imports around 16% in 2021. However, this came with a structural vulnerability: more than 75% of those imports originated from the Russian Federation (Romanian Government 2023). Nevertheless, in the post-2022 context Romania explicitly frames the reduction of dependence on Russia in terms of diversification, interconnections, and prospective flows from the Black Sea (Transgaz 2020). In present, Romania imports natural gas from Western Europe via Szeged-Arad interconnector and from Southern Europe through the interconnection points with Bulgaria - Kardam1-Negru Voda1 (Trans-Balkan Corridor) and Giurgiu-Ruse (Romanian Government 2024). In the medium and long term, however, the principal "game changer" is Neptun Deep (OMV Petrom–Romgaz): an investment of up to EUR 4 billion, with recoverable volumes estimated at approximately 100 bcm and first production expected in 2027. The project is presented as a "reliable and secure" source for the region and as a factor that would strengthen energy security by reducing the need for imports (OMV 2023).

Overall, the case studies demonstrate that reducing dependence on Russian energy has been achievable through different combinations of supply diversification (LNG and alternative pipeline routes), demand reduction, and investment in interconnections; yet, resilience remains regionally uneven - especially in South-Eastern Europe (including Romania), where energy security depends decisively on connectivity and on new domestic sources such as the Black Sea.

4. Internal Challenges

Although the EU has substantially reduced its energy dependence on Russia, progress is slowed by a small number of member states that remain structurally tied to Russian imports (gas and oil) and to the nuclear supply chain (technology and fuel-cycle services). This creates tensions around solidarity and complicates the implementation of the objective of phasing out Russian energy imports. In addition, the process is hindered by certain transactions that allow hydrocarbons of Russian origin to enter the EU indirectly via intermediaries, swaps[2], or hub-based trading arrangements.[3]

a) From Policy to Implementation: Hungary and Slovakia and the Final Stage of EU Decoupling

Hungary has not only maintained but in fact increased its imports of Russian gas via the TurkStream pipeline. Reuters reports that imports reached approximately 8 bcm in 2025, up from around 6 bcm in 2023, a trajectory underpinned by southern-route infrastructure and the continued reliance on long-term contracting – developments that are likely to slow the EU's decoupling from Russian gas and to generate security-relevant vulnerabilities (Martin Vladimirov 2025). At the declaratory and contractual level, Hungary reinforced this relationship through a 15-year agreement signed in 2021 (4.5 bcm per year); imports were subsequently expanded to roughly 7.5 bcm via TurkStream (with additional volumes routed through the region) in 2024–2025, indicating persistent dependence even during the period of EU-Russia decoupling (Reuters 2025a). Moreover, Prime Minister Viktor Orbán has sought to persuade Ukraine to keep in place the transit arrangements that allow Russian gas crossing Ukrainian territory to reach Hungary (Reuters 2024).

In the oil sector, Hungary's dependence is amplified by exemptions applicable to landlocked states and by the role of the Druzhba pipeline: Hungary's foreign minister indicated that "about 80%" of crude oil imports came from Russia in 2022, helping to explain Budapest's political resistance to

[2] Arrangements through which two traders/companies "swap" between them the delivery right (or ownership) over the same quantity of gas/oil, but at different points in the network, in order to avoid unnecessary physical transportation.
[3] If a buyer purchases gas "at the hub" (i.e., a blended pool of supplies), it may be difficult to determine what share originates in Russia in the absence of clear reporting rules, because the hub aggregates volumes from multiple routes and contracts.

accelerated phase-out measures (Reuters 2023). Furthermore, analytical estimates suggest dependence rose to ~86% în 2024 (Isaac Levi et al. 2025, 3-4, 8-10).

In 2025, Hungary's exposure to Russian crude increased in volume terms, as Russian government data reported 4.78 million tonnes delivered via Druzhba in 2024, while Hungary's foreign minister said Russia would export 5.0-5.5 million tonnes in 2025 – which, against the IMF-cited 86% Russian-oil share in 2024 (International Monetary Fund 2025, 2), implying total crude imports of ~5.56 million tonnes, suggests a 2025 Russian share of roughly ~90% if overall import volumes remained comparable (Komuves 2025, Astakhova and Soldatkin 2025).

In the nuclear domain, the challenge is one of long-term structural dependence: the Paks II project involves Russian participation (Rosatom) and associated financing, and the EU's top court has criticised the manner in which the approval framework was handled, underscoring the dossier's legal and political sensitivity (Reuters 2025b). Even though steps toward nuclear-fuel diversification have been taken - most notably a contract with the French company Framatome to supply fuel to the Paks reactors starting in 2027 – the nature of the infrastructure and ongoing projects means that full decoupling is likely to proceed more slowly than in other member states (World Nuclear News 2024).

Slovakia remains highly exposed in terms of gas imports, as it receives the "majority" of its gas from Gazprom under a long-term contract running until 2034 for approximately 3.5 bcm per year; following the termination of transit via Ukraine at the end of 2024, Slovakia began receiving volumes through TurkStream, via Hungary (Reuters 2025c). This dependence is also evident in logistical adjustments: in 2025, Slovakia's state-controlled gas importer Slovenský plynárenský priemysel reported that Gazprom would raise deliveries to Slovakia routed via TurkStream to "several times" the volumes shipped in the preceding two months (with no absolute volumes disclosed), enabled by capacity reallocations and flows facilitated by Hungary – an evolution that points to a reconfiguration of routes rather than an elimination of the underlying source (Reuters 2025d).

Quantitatively, the post-Ukraine rerouting is not merely symbolic. By early September 2025, Slovakia had already imported around 1.7 bcm via Hungary – its most direct link to the TurkStream corridor - based on data from the Slovak transmission operator Eustream as reported by Reuters; this scale is material relative to the ~3.5 bcm/year long-term contractual baseline and suggests that the southern route can cover a substantial share of Slovak needs even in the absence of Ukrainian transit (Reuters 2025e). At the operational level, early-2025 nominations underscore the rapid stabilisation of this corridor: shortly after the Ukraine route stopped, daily inflows from Hungary into Slovakia reached 87 GWh/day, the highest since the start of January, indicating that replacement flows were being re-established through the Hungary-Slovakia interconnection (Lopatka 2025). Importantly, the route is also being structurally "locked in" through capacity upgrades: a project is under way to raise cross-border capacity from 3.5 bcm to 4.4 bcm, increasing the system's ability to accommodate Russian-origin volumes entering via TurkStream (Reuters 2025e).

In the oil sector, Slovakia - like Hungary - remains tied to the Druzhba pipeline and has benefited from derogations intended to facilitate a gradual transition, thereby preserving a "hard core" of residual Russian dependence within the EU (Gizińska and Wankiewicz-Kłoczko 2024). A key difference from Hungary, however, is that Slovakia has taken more explicit steps in the nuclear domain, lowering the risk of long-term technological dependence. Slovenské elektrárne, the country's largest electricity producer, concluded agreements for alternative VVER-440 nuclear fuel with the U.S. company Westinghouse (2023) and with Framatome (2024), with deliveries planned from 2027 (Slovenské elektrárne 2023) is an approach that reflects a structured substitution strategy encompassing testing, licensing, and contracting (Slovenské elektrárne 2024).

From an EU perspective, Hungary and Slovakia constitute an internal challenge not only in technical terms but also politically. Budapest and Bratislava have invoked economic costs and risks to oppose certain sanctions packages and/or efforts to accelerate decoupling, a stance that can slow down - or fragment - the implementation of common measures (Reuters 2025f).

b) Security Risk: "Disguised" Purchases of Russian Gas and Hydrocarbons via Intermediaries

Even as direct imports decline, the EU faces the risk that gas or hydrocarbons of Russian origin may still enter the market indirectly – via intermediaries, swaps, or hub-based transactions – thereby sustaining revenue flows to the Kremlin and weakening the effectiveness of decoupling policies. The gas market provides a clear illustration. The European Commission notes that in 2024 the EU still imported 52 bcm of Russian gas, including LNG, and that some member states may be supplied indirectly through wholesale market purchases; hence the growing policy emphasis on transparency, monitoring, and traceability (European Commission 2025a).

In oil and refined products, a recurrent circumvention pattern involves processing Russian-origin crude in third countries and then exporting the resulting fuels to the EU as ostensibly "non-Russian" commodities; within this architecture, so-called "ghost tankers" – often associated with the "shadow fleet" – can reinforce opacity in upstream logistics and provenance attribution, thereby complicating traceability before refining and enabling subsequent re-entry of refined outputs into EU markets. To curb such practices, the EU has issued prohibitions and compliance guidance that place the burden on importers to furnish documentary evidence and robust due-diligence demonstrating that Russian crude was not used in the refining chain for imported products (European Commission 2025b, 1-2).

In energy-security terms, circumvention through intermediaries has three principal effects: (1) it undermines the EU's strategic objectives by sustaining a de facto dependence; (2) it distorts progress indicators by rendering true origin opaque; and (3) it generates legal and reputational risks for importers. For these reasons, traceability – through origin certification, auditing, and customs cooperation – becomes an indispensable component of any credible policy to phase out Russian energy imports.

Conclusions and Recommendations

Building on the research question - namely, to what extent and through which mechanisms the European Union succeeded in reducing its dependence on energy resources from the Russian Federation between 2022 and 2025, and what new vulnerabilities emerged as a result - the findings indicate that decoupling was real, rapid, and, as a strategic direction, quasi-irreversible. However, selective re-coupling cannot be ruled out if political constraints loosen and price incentives re-emerge. The critical inflection point was 2022: the Russian Federation's military intervention in Ukraine reframed energy from a predominantly economic issue into a matter of security, accelerating decisions that, under the pre-2022 logic, would likely have unfolded far more slowly. Put differently, 2022 functioned as a systemic shock that compressed political timelines and generated the consensus required for exceptional measures at both EU and member-state levels.

With respect to the stated hypothesis – that post-2022 policies reduced structural dependence on Russia and constrained its capacity for energy coercion, while transferring part of the risk to LNG, critical infrastructure, and the industrial supply chains underpinning the transition – the analysis broadly confirms it. Dependence on Russia declined across the main segments, and the geopolitical leverage exercised through energy was substantially weakened. Yet risk did not disappear; it was reconfigured. Today's vulnerabilities are less concentrated in a single actor and more dispersed throughout the system – manifesting in global market volatility, infrastructural constraints, and institutional capacity to manage overlapping crises.

In terms of mechanisms, decoupling operated through a mutually reinforcing policy mix: demand reduction, supply diversification, storage management, and EU-level coordination. The core conclusion is that no single instrument would have sufficed; effectiveness stemmed precisely from the EU acting simultaneously on "need" (demand), "source" (supply), and "buffer" (storage), in parallel with the strengthening of common governance. Against this background, member states adjusted at different speeds depending on infrastructure, geography, and strategic culture: where LNG terminals, interconnections, and industrial flexibility were available, adaptation was faster; where systems were rigid and dependent on a single route, the transition proved more costly and slower.

The case studies also support a second key conclusion: decoupling is not merely a technical process, but a political one. The persistence of dependencies in certain member states can generate internal frictions and slow the Union's strategic convergence. In particular, multi-layered dependencies (gas, oil, nuclear) raise the complexity of decision-making and increase the temptation of derogations, potentially turning decoupling into a "multi-speed" process. At the same time, these cases demonstrate that diversification is feasible, but it requires time, planning, and administrative capacity – especially where energy infrastructure is inherited from earlier decades.

Finally, the answer to the second part of the research question – new vulnerabilities -points to two broad directions. The first concerns market and economic exposure: reliance on hubs, LNG, and intensified global competition can generate volatility and exert pressure on industrial competitiveness. The second concerns governance and traceability: as direct imports decline, the significance of circumvention risk via intermediaries grows, alongside the difficulty of tracking origin in integrated markets. In energy-security terms, "decoupling" is not simply about switching suppliers; it also entails the capacity to verify, control, and manage the entire supply chain in a complex operating environment.

Accordingly, the overarching conclusion is twofold. On the one hand, the EU has demonstrated an ability to respond coherently and rapidly when energy is treated as a security issue, with 2022 acting as the decisive catalyst for this strategic shift. On the other hand, the success of decoupling generates a new set of challenges. Energy security becomes less a matter of "dependence on the Russian Federation" and more a question of resilience in an era shaped by global markets, critical infrastructure constraints, and technological transition. The next stage, therefore, is not only to maintain the trajectory of decoupling, but also to strengthen the EU's capacity to manage emerging risks without undermining internal cohesion, competitiveness, or the objectives of the energy transition.

BIBLIOGRAPHY:

ARERA, 2025, "Relazione Annuale sullo Stato dei Servizi e sull'Attività Svolta nel Corso del 2024", Accessed January 29, 2026. https://www.arera.it/fileadmin/allegati/relaz_ann/25/Sintesi_Relazione_Annuale_2025_10settembre.pdf. (In-text citation: ARERA 2025, 62).

Astakhova, Olesya, and Soldatkin, Vladimir. 2025. "Hungary attacks EU energy policy at Moscow conference", Reuters, October 15, accessed January 29, 2026. https://www.reuters.com/business/energy/hungary-attacks-eu-energy-policy-moscow-conference-2025-10-15/.(In-text citation: Astakhova and Soldatkin 2025).

Bundesnetzagentur. 2024. "Bundesnetzagentur Publishes Gas Supply Figures for 2023." January 4. Accessed December 19, 2025, https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2024/20240104_Gasversorgung2023.html. (In-text citation: Bundesnetzagentur 2024).

Bundesnetzagentur. 2025. "Bundesnetzagentur publishes gas supply figures for 2024." January 8. Accessed February 6, 2026. https://www.bundesnetzagentur.de/SharedDocs/Pressemitteilungen/EN/2025/20250108_GAS.html. (In-text citation: Bundesnetzagentur 2025).

Bundesnetzagentur. 2026. "Bundesnetzagentur publishes gas supply figures for 2025". January 12, accessed February 6, 2026, https://www.bundesnetzagentur.de/SharedDocs/Pressemittei lungen/EN/2026/20260112_GAS.html?nn=694186. (In-text citation: Bundesnetzagentur 2026).

Cherp, Aleh, and Jewell, Jessica. 2025. "The Concept of Energy Security: Beyond the Four As". *Energy Policy* 75 (2014): 415-421. accessed December 16. https://doi.org/10.1016/j.enpol. 2014. 09.005. (In-text citation: Cherp and Jewell 2025, 415-421).

Council of the European Union. 2022. "Council Regulation (EU) 2022/1369 of 5 August 2022 on coordinated demand-reduction measures for gas". August 8. Accessed December 18, 2025. https://eur-lex.europa.eu/eli/reg/2022/1369/oj/eng. (In-text citation: Council of the European Union 2022).

Council of the European Union. 2025a. “Where Does the EU’s Gas Come From?”. November 13, accessed December 17, 2025. https://www.consilium.europa.eu/en/infographics/where-does-the-eu-s-gas-come-from/. (In-text citation: Council of the European Union 2025a).

Council of the European Union. 2025b. “Council and Parliament Strike a Deal on Rules to Phase Out Russian Gas Imports for an Energy Secure and Independent Europe.” December 3. Accessed December 18, 2025. https://www.consilium.europa.eu/en/press/press-releases/2025/12/03/council-and-parliament-strike-a-deal-on-rules-to-phase-out-russian-gas-imports-for-an-ener gy-secure-and-independent-europe/. (In-text citation: Council of the European Union 2025b).

Eni. 2022a. “Eni and Sonatrach Agree to Increase Gas Supplies from Algeria through Transmed”. April 11. Accessed December 21, 2025. https://www.eni.com/en-IT/media/press-release/2022/04/eni-and-sonatrach-agree-to-increase-gas-supplies-from-algeria-through-transmed.html. (In-text citation: Eni 2022).

Eni. 2022b. “Eni and EGAS agree to increase Egypt’s gas production and supply” April 13, Accessed January 29, 2026. Available at: https://www.eni.com/en-IT/media/press-release/2022/04/eni-and-egas-agree-increase-egypt-s-gas-production-and-supply.html. (In-text citation: Eni 2023).

Eni. 2023. “Eni launches a major gas development project in Libya”, January 28, Accessed January 29, 2026. https://www.eni.com/en-IT/media/press-release/2023/01/eni-launches-a-major-gas-development-project-in-libya.html. (In-text citation: Eni 2023).

European Commission. 2015. “A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy”. Brussels, February 25. Accessed February 6, 2026. https://data.consilium.europa.eu/doc/document/ST-6594-2015-INIT/en/pdf. (In-text citation: European Commission 2015).

European Commission. 2022. “REPowerEU Plan. COM(2022) 230 final”. Brussels, May 18. Accessed December 16, 2025, https://eur-lex.europa.eu/resource.html?format=PDF&uri=cellar% 3Af c930f14-d7ae-11ec-a95f-01aa75ed71a1.0001.02%2FDOC_1. (In-text citation: European Commission 2022).

European Commission. 2025a. “Roadmap towards Ending Russian Energy Imports.” Brussels, May 6. Accessed January 8, 2026. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52025DC0440. (In-text citation: European Commission 2025a).

European Commission. 2025b. “Import Ban on Refined Products Obtained from Russian Crude Oil”. October 16. Accessed January 9, 2026. https://finance.ec.europa.eu/document/download/dc76791c-72aa-4fd5-b82f-ae13a42e93c0_en?filename=faqs-sanctions-russia-oil-import-ban_en.pdf. (In-text citation: European Commission 2025b).

European Union. 2017. “Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 on measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010”, Accessed December 16, 2025. https://eur-lex.europa.eu/legal-content/RO/TXT/?uri=CELEX:02017R1938-20250101. (In-text citation: European Union 2017).

Gastrade. 2025a, “The Project (FSRU Alexandroupolis).” Accessed December 22, 2025, https://www.gastrade.gr/en/the-project/. (In-text citation: Gastrasde 2025a).

Gastrade. 2025b. “Further Increase in Maximum Regasification Capacity.” October 21, 2025. Accessed January 5, 2026. https://www.gastrade.gr/en/2025/10/21/further-increase-in-maxi mum-regasification-capacity/. (In-text citation: Gastrasde 2025b).

Gizińska, Ilona, and Wankiewicz-Kłoczko, Paulina. 2024. “Better from Russia than via Croatia? The Future of Oil Supplies to Hungary and Slovakia,” OSW, September 9, accessed January 1, 2026, https://www.osw.waw.pl/en/publikacje/analyses/2024-09-09/better-russia-via-croatia-future-oil-supplies-to-hungary-and. (In-text citation: Gizińska and Wankiewicz-Kłoczko 2023).

Honoré, Anouk. 2023. “Italy and its North African Gas Interconnections: A Potential New Mid-Mediterranean Gas Hub”, Oxford Institute for Energy Studies, March, 3-4, Accessed January 29, 2026. https://www.oxfordenergy.org/wpcms/wp-content/uploads/2023/03/Italy-and-its-North-African-gas-interconnections.pdf (In-text citation: Honoré 3-4).

ICGB. 2025. "ICGB Launches Market Demand Assessment for Capacity Expansion of the IGB Pipeline." July 7, Accessed December 22, 2025. https://www.icgb.eu/news/icgb-launches-market-demand-assessment-for-capacity-expansion-of-the-igb-pipeline/. (In-text citation: ICGB 2025).

International Monetary Fund. 2025. "Hungary: Selected Issues, IMF Country Report No. 25/251". July 25. p. 2. Accessed January 29, 2026. https://www.imf.org/-/media/files/publications/cr/2025/english/1hunea2025002-source-pdf.pdf. (In text citation: IMF 2025, 2).

Isaac Levi et al. 2025. "The Last Mile: Phasing Out Russian Oil and Gas in Central Europe. Center for the Study of Democracy and Centre for Research on Energy and Clean Air", May, 3–4, 8–10, Accessed January 4, 2026, https://energyandcleanair.org/wp/wp-content/uploads/2025/05/CSD_CREA_HU_SK_05_25.pdf. (In-text citation: Isaac Levi et. al. 2025, 3-4, 8-10).

Komuves, Anita. 2025. "Russian oil flows to Hungary and Slovakia halted after Ukrainian attack," Reuters, August 18, accessed January 29, 2026. https://www.reuters.com/business/energy/russian-oil-flows-hungary-slovakia-halted-after-ukrainian-attack-2025-08-18/. (In-text citation: Astakhova and Soldatkin 2025).

Lithuanian Government. 2024. "Lithuania Completely Abandons Russian Gas Imports." April 2. Accessed December 21, 2025. https://enmin.lrv.lt/en/news/lithuania-completely-abandons-russian-gas-imports/. (In-text citation: Lithuanian Government 2024).

Lopatka, Jan. 2025. "Central Europe gas flows adjusted after Ukraine transit ends," Reuters, January 6, accessed January 29, 2026. https://www.reuters.com/business/energy/central-europe-gas-flows-adjusted-after-ukraine-transit-ends-2025-01-06/. (In-text citation: Lopatka 2025).

OMV. 2023. "OMV Announces Final Investment Decision Taken by OMV Petrom for Natural Gas Deep-Water Project Neptun Deep." June 21. Accessed December 22, 2025. https://www.omv.com/en/media/press-releases/2023/230621-omv-announces-final-investment-decision-taken-by-omv-petrom-for-natural-gas-deep-water-project-neptun-deep. (In-text citation: OMV 2023).

Plucinska, Joanna, and Strzelecki, Marek, 2022. "Russia Warns Poland, Bulgaria of Gas Supply Cuts on Wednesday." Reuters, April 26. Accessed December 21, 2025. https://www.reuters.com/world/europe/russian-gas-supplies-poland-halted-polish-media-reports-2022-04-26/. (In-text citation: Plucinska and Strzelecki 2022).

Polish Government. 2022. "Poland Terminated the Gas Agreement on the Yamal Gas Pipeline." May 27. Accessed December 21, 2025. https://www.gov.pl/web/climate/poland-terminated-the-gas-agreement-on-the-yamal-gas-pipeline. (In-text citation: Polish Government 2022).

Reuters. 2023. "Hungary Agrees on Option for More Russian Gas Shipments, Oil Transit Fees." Reuters, April 11. Accessed December 24, 2025. https://www.reuters.com/business/energy/hungary-agrees-option-more-russian-gas-shipments-oil-transit-fees-2023-04-11/. (In-text citation: Reuters 2023).

Reuters. 2024 "Hungary in Talks on Russian Gas Shipments via Ukraine, PM Orban Says." Reuters, December 21, Accessed December 23, 2025. https://www.reuters.com/business/energy/hungary-talks-russian-gas-shipments-via-ukraine-pm-orban-says-2024-12-21/. (In-text citation: Reuters 2024).

Reuters. 2025a. "Turkey to Guarantee Flow of Russian Gas to Hungary, Orban Says." Reuters, December 8. Accessed December 23, 2025. https://www.reuters.com/business/energy/turkey-guarantee-flow-russian-gas-hungary-orban-says-2025-12-08/. (In-text citation: Reuters 2025a).

Reuters. 2025b. "EU's Top Court Rules against Hungary's Nuclear State Aid." Reuters, September 11, Accessed December 24, 2025. https://www.reuters.com/business/energy/eus-top-court-rules-against-hungarys-nuclear-state-aid-2025-09-11/. (In-text citation: Reuters 2025b).

Reuters. 2025c. "Slovakia Aims for Agreement by Tuesday on End of Russian Gas Supplies, Sanctions." Reuters, July 12. Accessed January 2, 2026. https://www.reuters.com/business/energy/slovakia-aims-agreement-by-tuesday-end-russian-gas-supplies-sanctions-2025-07-12/. (In-text citation: Reuters 2025c).

Reuters. 2025d. "Gazprom to increase gas supplies through TurkStream from April, Slovak SPP says." Reuters, March 31, 2025. Accessed January 31, 2026. https://www.reuters.com/business/energy/gazprom-increase-gas-supplies-through-turkstream-april-slovak-spp-says-2025-03-31/. (In-text citation: Reuters 2025d).

Reuters. 2025e. "Slovakia wants to normalise relations with Russia, ramping up gas imports, PM Fico says," Reuters, September 2, Accessed January 29, 2026. Available at: https://www.reuters.com/business/energy/slovakia-wants-normalise-relations-with-russia-ramping-up-gas-imports-pm-fico-2025-09-02/. (In-text citation: Reuters 2025e).

Reuters. 2025f. "Hungary and Slovakia Block Russian Sanctions Package, Budapest Says." Reuters, June 23. Accessed January 6, 2026. https://www.reuters.com/business/energy/hungary-slovakia-block-russian-sanctions-package-budapest-says-2025-06-23/. (In-text citation: Reuters 2025f).

Romanian Government. 2023. "Draft Updated Integrated National Energy and Climate Plan (NECP) 2021-2030". 2023. Accessed December 22, 2025. https://commission.europa.eu/system/files/2023-11/ROMANIA%20-%20DRAFT%20UPDATED%20NECP%202021-2030.pdf. (In-text citation: Romanian Government 2024).

Romanian Government. 2024. "Strategia energetică din 21 noiembrie 2024 a României 2025-2035, cu perspectiva anului 2050". Portal Legislativ, Accessed February 6, 2026, https://legislatie.just.ro/Public/DetaliiDocumentAfis/293734. (In text citation: Romanian Government 2024).

Slovenské elektrárne. 2023. "Strengthening Slovakia's Energy Security: Slovenské elektrárne Concluded a Fuel Supply Agreement with Westinghouse." August 25. Accessed January 3, 2026. https://www.seas.sk/en/press-releases/slovenske-elektrarne-nuclear-fuel-westinghouse/. (In-text citation: Slovenské elektrárne 2023).

Slovenské elektrárne. 2024. "Nuclear Fuel Supply Agreement with Framatome.", July 23. Accessed January 3, 2026. https://www.seas.sk/en/press-releases/slovenske-elektrarne-framatome-nuclear-fuel-contract/. (In-text citation: Slovenské elektrárne 2024).

Transgaz. 2020. "Consolidated Report Issued by the Board of Administration". December 31, Accessed December 22, 2025. https://www.transgaz.ro/sites/default/files/Art.3% 20engleza_8.pdf. (In-text citation: Transgaz 2020).

Vladimirov, Martin. 2025. "TurkStream Gas Pipeline Could Slow EU, Russia Decoupling." May 7, 2025. Accessed January 5, 2026. https://www.reuters.com/business/energy/turkstream-gas-pipeline-could-slow-eu-russia-decoupling-vladimirov-2025-05-07/. (In-text citation: Vladimirov 2025).

World Nuclear News. 2024. "Framatome to Supply Hungarian Plant with Nuclear Fuel." October 28, Accessed January 2, 2026. https://www.world-nuclear-news.org/articles/framatome-to-supply-hungarian-plant-with-nuclear-fuel. (In-text citation: World Nuclear News 2024).