

MAKING SANCTIONS WORK IN THE EUROPEAN ENERGY SECTOR

Policy Brief No. 135, June 2023

The energy crisis in Europe, exacerbated by the Russian invasion of Ukraine, has demonstrated the inability of the EU to implement a coherent policy vision for the diversification of energy supply and the decarbonisation of economy. The analysis of the Energy and Climate Security Risk Index (ECSRI)¹ demonstrates that **Europe's energy and climate security risks have deteriorated since the annexation of Crimea** in 2014.² A number of European countries increased their dependence on Russian natural gas imports, with Italy and Germany alone accounting for half of this growth. To enable its influence over European energy markets, Russia entrenched powerful patronage networks to influence strategic decisions and undermine the common European energy and climate security policy.³

Simultaneously, most countries in Central and Eastern Europe (CEE) have not been able to implement the ambitious EU decarbonisation goals and remained locked in a strategic dependence on Russian oil, gas and nuclear energy, as well as on domestic coal-based power generation. As many Western European countries deepened their economic ties with Russia and increased their reliance on the use of natural gas, there was little incentive for CEE member states to commit to greening their economies and reducing their exposure to Russia.⁴

¹ The Energy and Climate Security Risk Index (ECSRI) breaks down the vulnerabilities of each Member State and the EU as a whole into four risk dimensions as part of the energy policy trilemma: achieving security of supply, affordability and sustainability, all while minimizing geopolitical risks.

² Vladimirov, M. Rangelova, K., and Dimitrova, A., *The Great Energy and Climate Security Divide: Accelerated Green Transition vs. the Kremlin Playbook in Europe*, Sofia: Center for the Study of Democracy, 2022.

³ Shentov, O, Stefanov, R., and Vlaimirov, M. (eds.), *The Kremlin Playbook in Europe*, Sofia: Center for the Study of Democracy, 2020.

⁴ CSD. *The Future of Natural Gas in Southeast Europe*. Sofia: CSD, 2023.

KEY POINTS

- Since the Russian invasion, the EU's energy and climate security risks have jumped to their **highest level** ever.
- The swift policy action of EU countries **reduced geopolitical risks** by 16% year-on-year in 2022 but at a very **high cost for energy consumers**.
- Russia remains an important natural gas player in Europe as many EU countries still import **significant volumes of pipeline gas and LNG** from Gazprom.
- The **current sanctions** will not be able to achieve the longer-term objective of strategic decoupling from Russia, as they are **designed to allow** Russia to continue exporting energy.
- Both the **oil embargo and the oil price cap** have glaring governance **loopholes** exploited by Russia to keep selling crude and oil products above the ceiling price across the world.
- Decoupling from Russia in the **nuclear energy sector** has already started but will take long-term political commitment to complete.
- The EU should consider **expanding the scope of sanctions** to include natural gas and secondary sanctions for oil traders, shippers, and insurers enabling Russian oil sales.
- Decoupling from Russia would not be possible without targeting the **state capture networks** that have enabled strategic partnerships between Russian and European energy companies.

Global Energy Shifts

The energy and climate security benefits of the low-carbon transition did not become mainstream before the start of the war in Ukraine. Gazprom’s unilateral supply cuts to Europe caused both gas and power prices to climb rapidly, leading to skyrocketing energy costs and rising energy poverty, falling industrial competitiveness, and few sustainable energy supply alternatives. This was a rude wakeup call for the EU, which in turn embarked on a **highly ambitious REPowerEU strategy** emphasizing the twin approach of maximizing non-Russian gas imports while also increasing renewable energy, electrification, energy efficiency, and innovation. However, as with previous EU energy policy initiatives, most notably the European Energy Union, there is a wide gap between policy design and policy implementation. Bridging this gap would require the deepening coordination of national policies across sectors and policy areas on the back of a long-term political, financial, and social commitment.

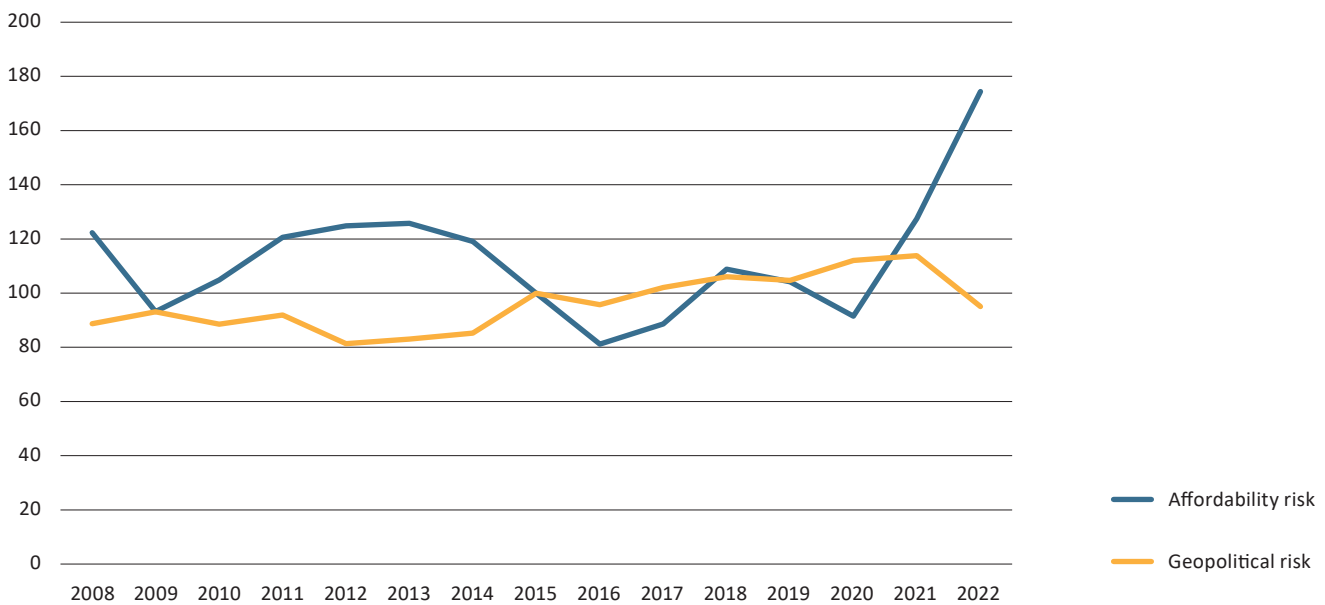
In the policy context of 2022, the EU’s energy and climate security risks have jumped to the highest

efforts, and the lack of sufficient infrastructure for storing, importing, and transporting natural gas within Europe.⁵

The EU-wide policy shift towards a **natural gas lock-in** resulted in a costly trade-off between the benefits of the relatively cheaper Russian gas for the growth of industrial production, the replacement of coal with natural gas as a transition fuel in power generation and the rising danger of excessively depending on an authoritarian state like Russia with revanchist ambitions. The true cost of this geopolitical risk has materialized in 2022.⁶ The EU was forced to rapidly replace the Russian gas in times of **limited alternative supply options** (mostly from U.S. LNG and an increase in Algerian and Norwegian pipeline imports) and in an overheated spot market.

The swift policy action of many EU countries reduced geopolitical risks by 16% year-on-year in 2022 but at the cost of **higher energy prices** across the continent (affordability risks were up 37% year-on-year in 2022, see Figure 1). Energy poverty among European households nearly doubled in the past 12 months to almost

Figure 1. Geopolitical vs. Affordability Risks in the EU



Source: CSD based on the Energy and Climate Security Risk Index.

level ever, surpassing its extremely vulnerable position on the eve of the Russian invasion. Since 2014, **geopolitical risks** rose by 34% in the EU (50% in Germany) due to the excessive dependence on Russian gas imports, limited supply diversification

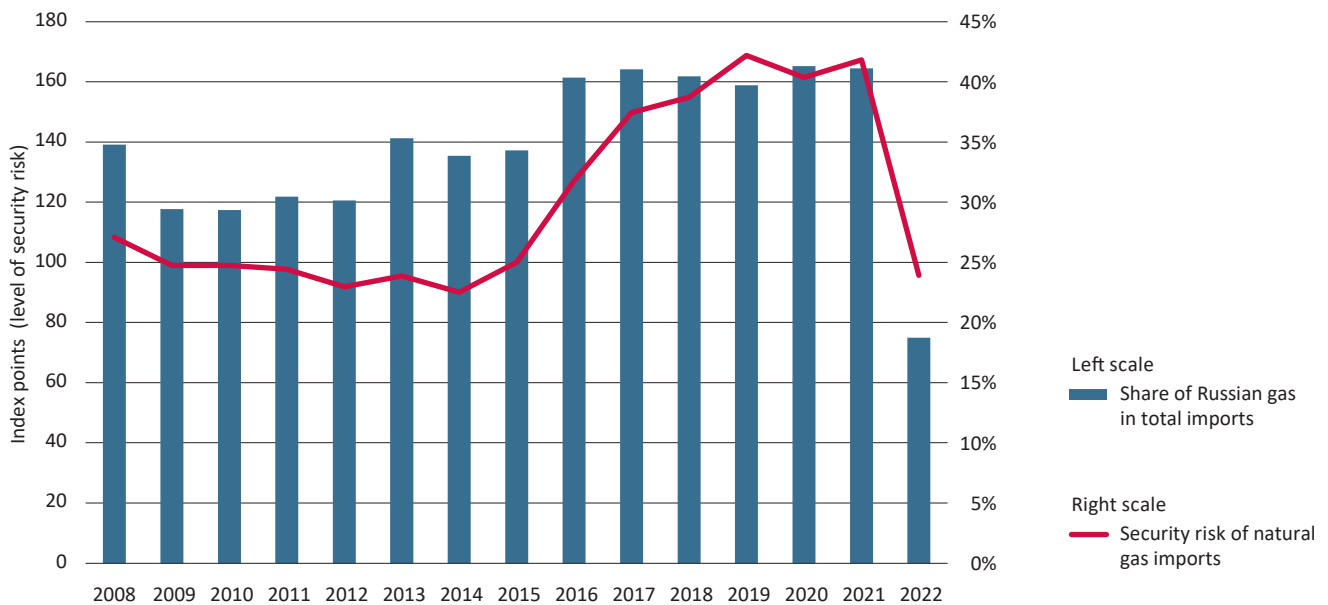
⁵ Of the endogenous risk indicators, the Security of Natural Gas Imports risk increased by 86% between 2014 and 2021, while the Security of Petroleum Imports risk fell by 10% over the same period. Exogenous risks such the security of global oil and gas production and reserves saw increases between 3% and 22%.

⁶ Based on the updated results of the ECSRI for 2022.

70 million people, and many energy-intensive businesses, mostly in the petrochemical, glass-making and metallurgical industries, have struggled to remain competitive on the global market despite more than EUR 800 billion in taxpayers' money given by European governments to support struggling companies and households.

At the same time, countries such as Slovakia, Austria, and indirectly Czechia have continued buying Russian pipeline gas through Ukraine, adhering to Gazprom's proposed ruble-based payment scheme since April 2022. In addition, some Western and Southern European countries including Portugal, Spain, and France

Figure 2. Security of Natural Gas Imports in Selected EU Countries



Source: CSD based on the Energy and Climate Security Risk Index.

Within a year, the **EU halved the share of Russian gas in its import mix**, a reduction due more to Russian gas supply cuts than policy changes. This improved the diversity of supply component of the geopolitical risk category by 56% and the overall security of natural gas imports by 43%. Nevertheless, the EU energy security position is barely below 2015 levels. Many other risk factors persist, such as the overall import dependence, especially on Algeria, Qatar, and Azerbaijan, and the overall high share of natural gas in the EU energy mix.

Most of the improvement in supply security came from the **accelerated diversification efforts of Germany and Italy**. For many other countries, most notably in Central and Southeast Europe, natural gas import risks have remained high as Russian gas dependence persists. **Natural gas flows through TurkStream**, which delivers Russian gas to Greece, the Western Balkans, and Hungary, remain unchanged in comparison to pre-war levels, making it the single largest source of Russian gas exports to Europe (approx. 10 billion cubic meters per year).

have increased their imports of Russian LNG in 2022, undermining the European efforts to decrease energy ties with Russia and reduce the oil and gas revenue flows to the Kremlin.⁷

Implementation Gaps in Energy Sanctions

Since the Russian invasion, the **EU has adopted 10 rounds of sanctions** including asset freezes and travel bans for a wide range of Russian companies and individuals. The EU has also passed restrictive measures for a number of business activities including the sale of military equipment, high-tech items such as microchips and precision gear, and many other goods that could be repurposed for military use. The EU has also

⁷ Eurostat monthly statistics on imports show a direct increase on Spain's gas imports from Russia (up 50% y-o-y in 2022). France does not import directly from Russia in the monthly statistics but the 400% y-o-y increase of imports from Spain indicates indirect imports of LNG, including partially of Russian LNG under the contract with Novatek for deliveries from the Yamal LNG facility in Russia.

banned the import of coal, crude oil, and oil derivatives with the aim of undermining the fundamentals of the Kremlin's economic and political influence.

However, the current sanctions will not be able to achieve the longer-term objective of strategic decoupling from Russia. The reason is twofold. Firstly, the **sanctions were designed in a way that allows Russia to continue exporting energy**, including oil, natural gas, and coal. This is because completely cutting off Russian energy from world markets would lead to a global recession and significant price spikes in oil, causing economic downturns in many developed countries. Secondly, the majority of countries outside the EU/G7 have not abided by the sanctions regime and have continued, even expanded, their energy trade with Russia. Yes, Russia is forced to sell at a price cap that reduces its revenues but glaring loopholes in the implementation of this sanctions policy means that significant volumes of Russian oil still reaches global markets above the price cap.

In addition, the decades-long entanglement between European and Russian companies in the energy sector has contributed to the creation of powerful **networks of intermediaries** which enable **sanctions evasion** and the undisrupted flow of the Russian oil and gas trade not only with developing countries (where there are few ways to stop Russian energy) but also in Europe.

Although EU sanctions against Russia have been unprecedented in terms of depth and reach, ensuring their effective implementation and enforcement has been problematic. The EU does not possess the institutional infrastructure to ensure the enforcement of such rigorous sanctions. The EU appointed a sanctions coordinator, pushed forward with establishing the European Anti-Money Laundering Authority, adopted an investment screening mechanism, and is about to come up with a comprehensive economic security strategy.

Yet, on national level, many EU companies have been exploiting **gaps in the restrictions regime** or the lack of adequate controls from national regulators to evade sanctions, especially on Russian crude oil and oil products and on dual use goods that Russia needs to sustain its war effort in Ukraine. After falling in March 2022, Russian imports have climbed up again, as Russia has been able to develop alternative supply chains.

As a result, the **current sanctions regime has achieved only limited success** in reducing Russia's oil revenues,

allowing Russia to maintain a firm foothold in the EU oil market, particularly in Central and Eastern Europe. In addition, natural gas has remained out of the scope of EU efforts due to greater supply security concerns and the strong role of intermediary traders that have sometimes even increased natural gas sales in different countries. In nuclear energy, although diversification efforts have accelerated, many CEE countries still depend on Russian nuclear fuel and technology, prompting them to threaten to block any EU sanctions on the Russian nuclear industry.

The Oil Sanctions Conundrum

The export of crude oil and oil products is the main source of budget revenues for the Kremlin. In 2021, the sale of oil and gas made up 36% of the Russian state balance sheet, more than half of which came from exports to the EU.⁸ Nevertheless, it was only with the sixth package of sanctions, adopted in June 2022, that the **EU agreed to impose an oil embargo on Russia**. The embargo entered into force in December 2022 (for crude) and February 2023 for oil products, a year after the war began. The ban on Russian oil includes the purchase, import or transfer of seaborne crude oil and petroleum products originating from Russia. However, EU countries can continue to import petroleum products that have been produced from Russian crude in third countries.

The EU is also part of the **G7's price cap of \$60 per barrel on Russian crude oil** that entered into force in December 2022. Its goal is to keep Russia on the global market to prevent an oil price spike while reducing the Kremlin's oil revenues by forcing it to sell at lower prices than the global benchmarks. Under the price cap mechanism, EU companies are allowed to provide technical assistance, brokering services, financing, or financial assistance to the sales of Russian oil to third countries if that crude is sold below the price cap.⁹ In effect, the trade of Russian petroleum above the price cap is not a violation of sanctions, as long as EU/G7 companies are not involved. The justification given by Western policy-makers for allowing this gap has been that Russia cannot easily insure and transport its crude oil without the assistance of EU and U.S. brokers.

⁸ CSD. *EU Energy and Climate Security Strategy to Counter the Russian Aggression in Europe*. Sofia: CSD, 2022.

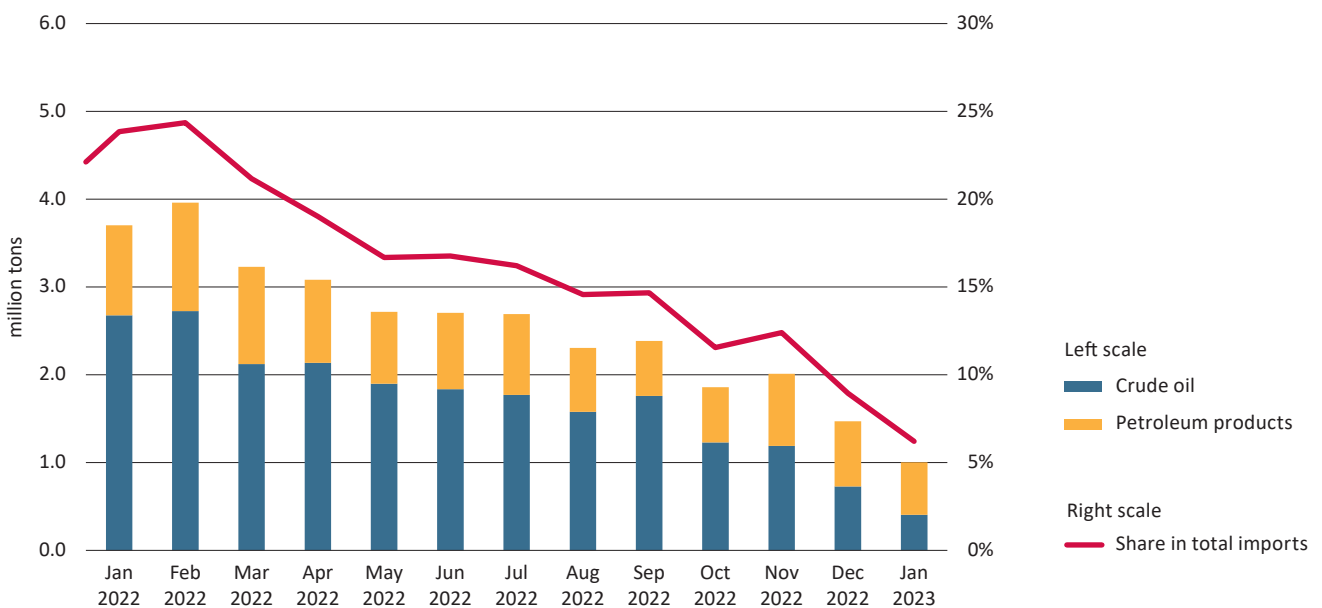
⁹ USD 60 per barrel for crude oil, USD 100 per barrel for clean petroleum products and USD 45 per barrel for dirty petroleum products that typically sell at a discount to crude.

The EU sanctions policy has largely worked to **significantly reduce Russian oil imports in Europe**. Even before the embargo came into force, European companies were determined to reduce their exposure to Russia (see Figure 3).¹⁰ To maintain sales abroad, Russian firms offered a discount of between \$20 and \$30 per barrel, bringing down the Russian crude price to below or around the price cap level. Hence, the ceiling imposed on the trading of Russian oil officialised the market reality and enabled Russia to preserve both domestic production and most of its global market share. In addition, as the EU did not immediately impose the embargo on Russian crude imports, European companies increased their Russian oil purchases during the grace period between June and December 2022, providing additional revenues to the Kremlin to fund its military campaign in Ukraine.

on the North and the Baltic Sea.¹¹ The exemption also allows these member states to use these alternative pipelines to deliver seaborne Russian crude if deliveries via the Druzhba pipeline are interrupted.

Bulgaria also has a derogation from the sanctions although it has direct access to an international marine port for importing crude oil from alternative sources. Bulgaria is thus allowed to keep importing Russian crude until December 2024, even though its refinery on the Black Sea coast has the technological capacity to process a wide range of alternative crude grades.¹² In both the case of Bulgaria and that of landlocked nations, the request for derogations was justified on the basis that the local refineries would not be able to switch to non-Russian oil, which is technically false as these refineries all have experience of operating with large shares of non-Russian crude.

Figure 3. European Union Imports of Russian Crude Oil and Petroleum Products



Source: CSD calculations based on Eurostat data.

In addition, the **EU has approved a number of derogations on the embargo** to several member states, presenting glaring loopholes for sanctions evasion. Crude oil delivered by pipeline to landlocked member states (including Hungary, Czechia and Slovakia) is excluded from the embargo even though these countries have alternative access to seaborne crude via the Adria pipeline from Croatia and via the Western portions of the Druzhba pipeline system connected to oil terminals

As a result, in the first quarter of 2023, the EU imported 580 000 b/d of Russian crude in no violation to the sanctions, injecting approximately USD 2.4 billion into Russia’s war chest.¹³ In addition, another 200 000 b/d of Russian crude made it to other EU

¹⁰ CSD based on Thomson Reuters data, as recovered from [Neste](#).

¹¹ CSD. Europe Will Make Do Without Russian Oil. Sofia: CSD, 2022.

¹² CSD. Can Bulgaria Survive without Russian Oil?. Sofia: CSD, 2022.

¹³ CSD calculations based on data price and exports data from KSE Institute, International Energy Agency, as cited in Hilgenstock et al., *Russian oil exports under international sanctions*, April 2023.

destinations¹⁴ in Q1, 2023, constituting potentially a violation of the embargo. This would mean that up to 27% of the Russian crude arriving into the EU could be a form of smuggling.

A common practice for obscuring the true origin of the sanctioned crude is to use **dark ship-to-ship transfers (STS)**, in which tankers turn off their transponders and disappear from vessel-tracking systems or spoof the signal to appear to be in another location. Since December 2022, ship-to-ship activity offshore Kalamata in Greece and Ceuta in Spain has surged and tankers, formerly carrying Iranian and Venezuelan crude, accounted for over a quarter of these activities compared to just 2% previously.¹⁵ It is hence likely that most of the STS transfers are related to the Russian crude sales.

Since the only derogation from the EU ban on oil products and derivatives concerns vacuum gas oil imported by Croatia, EU imports of Russian petroleum products should have dropped close to zero since March 2023.¹⁶ The reality, however, is that re-exported fuels produced with Russian oil still find their way into the EU when India, Turkey, the UAE or Saudi Arabia blend them with locally-produced petroleum products.¹⁷

The EU could have completely eliminated Russian crude oil and products from the European energy market without suffering major supply outages or price hikes.¹⁸ Instead, **short-term political interests and local enablers** of Russian political and economic influence in Europe allowed Russia to continue selling oil to the global market and accumulate large budget surpluses.¹⁹ Without **secondary sanctions**²⁰, it is easy for

Russia to find alternative buyers for its crude, with India emerging as the main new destination. Hence, the total volume of Russian crude exports has remained essentially unaffected.

While the EU embargo has essentially cut the trade of Russian crude with Europe, the **price cap mechanism** has had almost no real effect globally. Russia has shifted crude exports to ports on the Pacific Ocean, which typically go to Asian buyers at prices above the cap (above USD 70 per barrel in Q1-2023).²¹

In addition, EU shipping companies, especially **Greek tanker operators**,²² have remained key **enablers of Russian crude trade**.²³ Up to 50% of the trade of Russian crude from eastern ports still relies on services from EU/G7 companies, constituting a systemic violation of the oil price cap, due to enforcement loopholes and weak deterrence.

The compliance with the price cap relies mainly on the good faith of EU companies. Only crude oil buyers are required to provide compliance documentation and only upon the request of national authorities.²⁴ Insurers and shippers ensure sanctions compliance by a general attestation, in which their customer commits to not purchase seaborne Russian oil above the price cap. Hence, the risk of breaking the sanctions stays with the crude buyers, which are often trading companies located outside the EU.²⁵ **The penalty for non-compliance is also rather symbolic.** Vessels that have handled non-compliant crude (a very lucrative business due to the high-risk premium) can regain access to EU/G7-based insurance services just 90 days after unloading their last non-compliant cargo.

¹⁴ In the Netherlands, Spain, Italy, and Portugal.

¹⁵ *The fleet operating in opaque markets*, Vortexa Special report, April 2023.

¹⁶ The most recent monthly data from Eurostat does not cover the period after the entry into force of the embargo. Anecdotal evidence from ship tracking data available in public sources suggests a drop in EU imports in March. Nevertheless, this is not enough to confirm the level of compliance with the sanctions.

¹⁷ Anecdotal evidence from ship-tracking agencies suggests that in recent months Saudi Arabia, a major exporter of diesel, has ramped up imports of Russian diesel, to the tune of 200 000 b/d.

¹⁸ CSD. Europe Will Make Do Without Russian Oil. Sofia: CSD, 2022

¹⁹ Russia's revenues from crude oil and petroleum product exports were only marginally affected during the first six months of the war and they even saw a temporary rebound over July-August, according to data from [CREA](#).

²⁰ A tool, used previously by the US in its sanctions against Iran and Venezuela, where US companies are not allowed to do business with companies from third countries that are dealing with sanctioned crude. Third-country companies are thus faced with the choice between doing business with the sanctioned country or with the US and most often the latter choice prevailed.

²¹ Hilgenstock et al., *Russian oil exports under international sanctions*, April 2023.

²² Greek tanker operators dominate Russian oil trade, with a fleet of close to 250 vessels, 2.5 times larger than the second biggest fleet servicing Russian oil – Russia's, according to data from Vortexa, as reported in *Tanker fleet profile for Russian oil after sanctions*, April 2023.

²³ Hilgenstock et al., *Russian oil exports under international sanctions*, April 2023.

²⁴ In case of falsified attestation, EU operators without direct access to price information (e.g. insurers and shippers) would not be considered in breach of the price cap, provided they have acted in good faith, as per the [EU's official guidance on the oil price cap mechanism](#).

²⁵ The UAE has recently emerged as a new trading hub servicing the opaque crude market.

Natural Gas: Still in the Game

In the years leading up to the Russian invasion of Ukraine, Russia successfully consolidated **control over strategic energy infrastructure in Europe**, including oil and gas pipelines, refineries, and gas storage facilities. Russia leveraged this vulnerability in an attempt to weaken support for Ukraine and undermine European unity on sanctions. Russia deliberately left some of Europe's largest gas storage facilities, partly or wholly owned by Gazprom, empty to cause a supply deficit that would drive up prices. When the EU imposed sanctions on Russia in attempt to divide Europe, the Kremlin retaliated by cutting gas deliveries to several EU member states, while promising to continue selling gas to member states that paid in rubles. Russia expected that when faced with the choice between suffering economic pain from the reduced energy supply or punishing Russia for its aggression, Europe's will to maintain the support for sanctions would weaken, as it did after the annexation of Crimea in 2014.

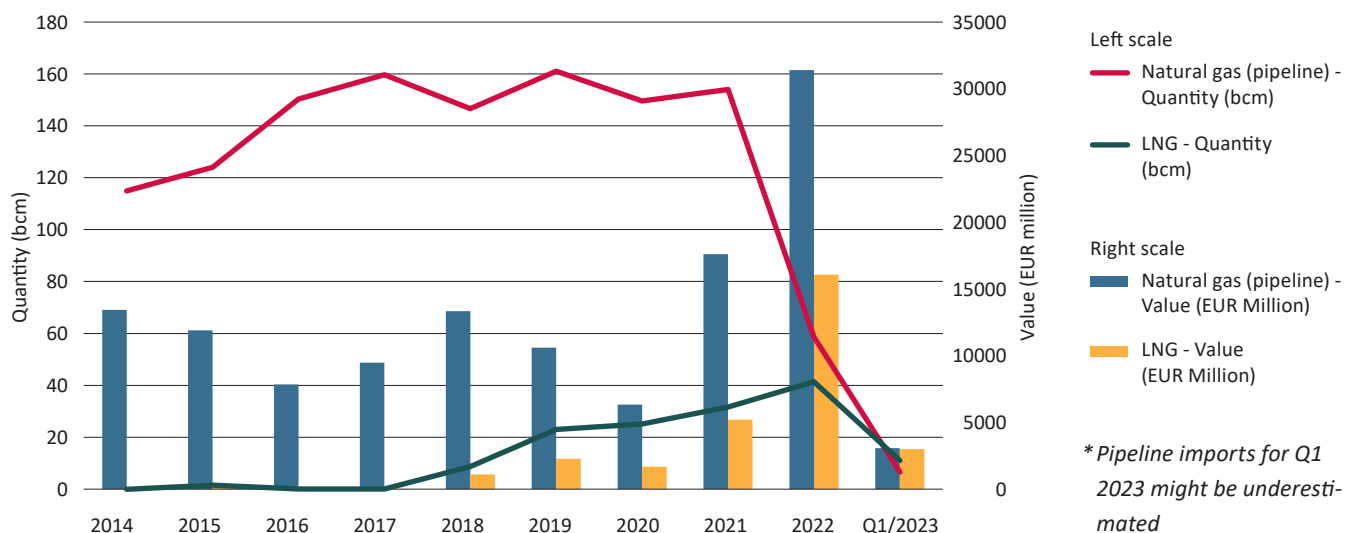
So far, the Kremlin's strategy has failed, and more than a year after the invasion began, Europe remains united in its support for Ukraine, although Russia cut most of

Europe, impose mandatory targets for filling up gas storage facilities, and reduce natural gas consumption in part by promoting higher use of renewable energy in power generation (figure 4). As a result, the demand for natural gas fell while supply rose, leading to the fall of prices to pre-war levels in Q1, 2023 and thus dealing a strong blow to Russia's natural gas revenues.²⁶

Although Europe has taken steps to reduce its dependence on Gazprom, Russia still ships natural gas to Europe through pipelines and LNG. In 2022, pipeline imports fell by 62% compared to 2021, but Russia still received EUR 13.8 billion more in revenues. In addition, Russia has been steadily increasing its LNG exports to the EU by investing heavily in LNG export infrastructure. In 2022, Russian LNG sales to Europe saw the largest year-on-year increase (30%) in volume terms so far, leading to a 209% increase in revenues (around EUR 16 billion) based on the high prices in Europe.²⁷

Among the **EU countries that have increased Russian LNG imports** are Belgium, Spain, the Netherlands, Portugal, Greece and Italy. Some of this gas is not consumed in the country of LNG cargo arrival but is shipped onwards to other markets including to those

Figure 4. EU Natural Gas Imports from Russia*



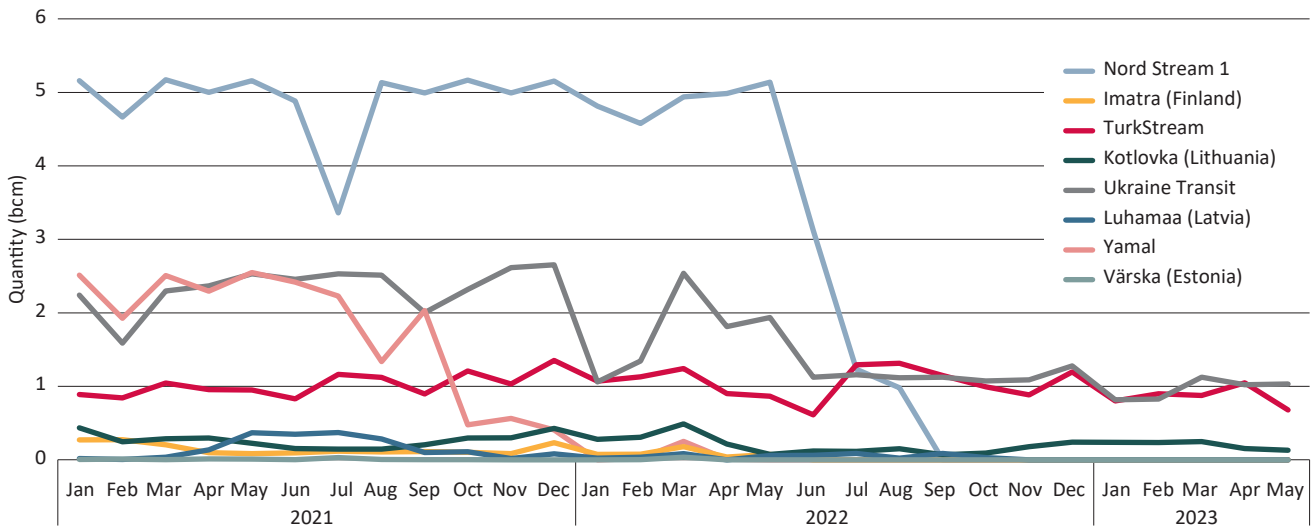
Source: CSD based on COMEXT data from Eurostat.

its natural gas pipeline exports to Europe that led to unprecedented gas price levels of over EUR 300/MWh back in August, 2023. **EU countries were able to withstand the Russian gas manipulation** by taking comprehensive measures to expand LNG imports from diverse suppliers, improve natural gas interconnectivity within

²⁶ Russian gas revenues remained relatively stable in the first few months of the war, despite the decrease in exports to Europe thanks to skyrocketing prices. However, when prices started to decline after September 2022, so did Russia's revenues.

²⁷ Russia's share of the European LNG market actually fell from 16% in 2021 to 13% in 2022, as the whole market expanded, mainly due to increased supply from the US and Qatar.

Figure 5. EU Natural Gas Import Flows from Russia by Entry Point



Source: CSD calculations based on ENTSOG data.

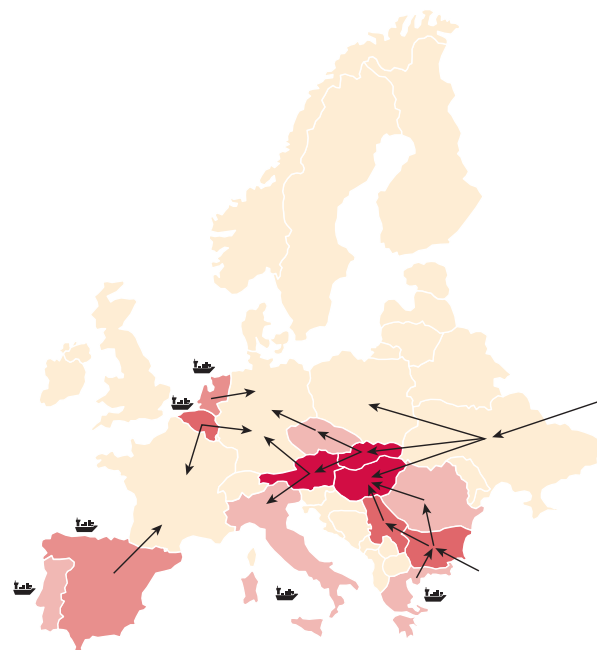
that have been suffered a direct Gazprom supply cut in 2022. Two examples clearly stand out. Bulgaria has indirectly bought Russian LNG cargoes in 2022, initially destined for Greek companies with long-term agreements with Gazprom. Similarly, Belgium has significantly increased its LNG imports since February 2022 to meet not only its own demand, but also that of the EU’s largest economy, Germany. In the first three months of 2023, Germany received 23% of its natural gas imports from Belgium, while Belgium imported 60% of its LNG supply from Russia during the same period.

In the absence of sanctions on gas, **Russian supply continues to flow through the European pipeline system**, albeit at much lower rates. Although the gas transmission through the Yamal and Nord Stream 1 pipelines dropped to zero in January and September 2022, respectively, around 1.82 bcm of Russian gas has been entering the EU each month via TurkStream and the main transit route through Ukraine (figure 5). The main recipients of the Russian pipeline gas have been Greece, Serbia, Bosnia and Herzegovina, Austria, Slovakia and Hungary. Slovakia in particular has become a distribution hub for Russian gas in Central Europe, acting as a transit country for onward flows to Austria, Germany and Italy from both TurkStream and the Ukrainian gas system.

Although it is difficult to discern which gas flows through the European pipeline system have Russian origin once it is mixed with other gas imports in transit countries, the **large volume of natural gas imports by Germany and Italy** from typical Russian gas transit

countries is a strong indication that Europe is yet to achieve full decoupling from its dependence on Gazprom. In fact, **Austria is back to getting between 70 and 80%²⁸ of its gas from Russia**, reversing the reduction of Russian gas imports, which saw Gazprom’s share of the domestic market fall to an all-time low of 17% in

Figure 6. Indirect Russian Gas Flows in Europe after the Russian Invasion of Ukraine



Source: CSD.

²⁸ Neumaier, N., “Österreichs Energie: An Russlands “Gasleine”? tagesschau, April 10, 2023.

October 2022.²⁹ Thus, the fall in natural gas prices on European gas hubs is not only the result of EU's efforts to diversify its imports, but also, paradoxically, to the continued Russian gas flows through TurkStream and Ukraine.

Nuclear Energy as the Missing Piece

The excessive dependence on Russian nuclear technology and fuel is one of Europe's biggest energy and climate security vulnerabilities. In 2021, Europe relied on Russia for 20% of its natural uranium supply, 25% of the reactor fuel conversion, and 31% of its enrichment.³⁰ In addition, Rosatom accounts for 46% of the global commercial uranium enrichment capacity. The Euratom Supply Agency has concluded that, in the medium term, EU countries will struggle to conduct the necessary conversion and enrichment services³¹ in case of a supply interruption from Russia.³² Additional

production capacity would take years to develop, as the sector has been suffering from severe underinvestment in recent years, which can become a structural, long-term security of supply risk.

Most vulnerable are five EU Member states – Bulgaria, Czech Republic, Finland, Hungary, and Slovakia. They host 19 nuclear reactors based on the Soviet-developed VVER technology with a combined installed capacity of 11 GW. While most EU utilities have access to at least two alternative fuel sources, these particular reactors have 100% fuel manufacturing dependence on Russia. Moreover, the utilities are often bound by contracts with Rosatom that include clauses bundling together fuel delivery with other auxiliary services. The Kremlin has and can in the future leverage this dependence to change the countries' strategic energy policy, as nuclear energy plays a central role in the electricity mix.

Euratom's assessment has concluded that **strategic fuel inventories are at healthy levels** for most util-

Figure 7. The Nuclear Energy Dependence of Central and Eastern Europe

	Current nuclear capacity - GW	Share of Nuclear in power generation (2021-2022) - %	Current dependence on Russian nuclear fuel - %
Czech Republic	4.2	40%	100%
Finland	4.4	40%	20%
Slovakia	2.3	60%	100%
Hungary	1.9	50%	100%
Bulgaria	2	40%	100%

Source: CSD based on Eurostat, World Nuclear Association.

²⁹ Austria Press Agency, "Wieder 70 Prozent des Gases aus Russland" *Oesterreich*, February 9, 2023.

³⁰ Euratom Supply Agency, *Annual report 2021*, August 2022.

³¹ The conversion of raw uranium into uranium-hexafluoride and its subsequent enrichment in a different dedicated facility are the two key steps before fuel fabrication, where fuel pellets are produced and stacked and connected into a final fuel assembly suitable for the power reactor core.

³² Western European conversion facilities are underutilised due to the low price of enrichment services, which led to the practice of underfeeding enrichment facilities with low-enriched uranium.

ities in Europe, covering 3 years of supply needs on average. However, medium to long-term security of supply risks persist amid limited progress on fuel diversification. Only the Czech Republic and Bulgaria have taken concrete steps toward reactor fuel diversification, mainly because the delivery contracts with TVEL are expiring by 2025. Alternative supply can come online in 2024 in the former case, and in 2025 in the latter.

In other EU countries such as Slovakia, Hungary, and Finland, the supply agreements with TVEL have expiration dates stretching into the late 2020s and well after 2030. So far, the government and company officials in these states have not signalled that they are pro-actively working on securing alternative supply. Without stronger political will, fuel diversification is likely to remain slow and sporadic. This would also undermine the economic feasibility of the whole transformation process, as weaker demand for alternative fuel for VVER reactors would reduce the economic incentives for the development of new technological solutions.

Nuclear energy has remained untouched by the first 10 rounds of EU sanctions against Russia. Hiding behind Hungary's vocal opposition to such measures, there is also quiet support for this position from all member states dependent on Russian nuclear fuel, as well as France³³, whose state-owned nuclear industry maintains critical ties with Rosatom. As a result, the Russian nuclear monopoly has seen its annual exports grow by 15% in 2022 reaching USD 10 billion.

Decoupling from Russia in the nuclear energy sector has already started, but it will take years and long-term political commitment to complete. In May 2022, Fenovoima, a Finnish-led consortium, terminated a 2016 contract with Rosatom for the construction of the 1.2 GW Hanhikivi NPP. The future of the PAKS II 1.2 GW expansion project in Hungary also looks increasingly uncertain following a new, two-year delay for the project completion announced in early 2023. Even without targeted sanctions, the project will face hurdles from Russia's growing economic and political isolation which blocks all its business activities in Europe. Sanctions against Rosatom could accelerate the decoupling process providing more strategic clarity and direction to national governments.

Phasing out the Russian nuclear footprint in Europe offers a unique opportunity for non-Russian firms to fill the gap in the market after facing decades-long unfair competition from Rosatom, as the Russian company leveraged the Kremlin's informal oligarchic networks across Europe and generous financing arrangements to squeeze out competitors. Meanwhile, the energy crisis that was partially the result of Europe's excessive

dependence on fossil fuels in power generation has brought political momentum for a nuclear energy revival in Europe.

In July 2022, the European Parliament approved the European Commission's proposal to label **nuclear as a sustainable energy source under the Taxonomy Regulation**, opening the door for EU and national funding for new nuclear projects. This new development comes as EU member states continue to revise their National Energy and Climate Plans (NECPs). Several member states including Poland, which is looking to accelerate the coal phaseout, have already signalled their strong policy ambition for developing their nuclear power generation, which is likely to be reflected in the new national targets.

A nuclear revival in Europe, after several decades of project delays and ballooning costs, would not be an easy feat. The long lead time for new nuclear projects also means that near- and medium-term supply security risks in the electricity sector will have to be resolved by other market and technological solutions. Such plans require a clear and consistent long-term national energy strategy to attract private sector interest, a lesson that most Central and Eastern Europe countries have not yet learned. This is likely to leave them with empty, but undoubtedly costly, nuclear dreams.

Towards Strategic Decoupling from Russia

This geopolitical crisis has demonstrated that Europe must improve its energy sector governance to decouple from the Kremlin's malign economic and political influence and further dismantle its oligarchic networks across the continent. Hence, there is an urgent need to redefine the European energy and climate security strategy for strategic decoupling from Russia based on stricter sanctions enforcement and complete phaseout of Russian fossil and nuclear fuel imports.

Below is a non-exhaustive list of policy measures that aim to provide a roadmap for improving European energy and climate security while strengthening sanctions against Russia.

Energy and Climate Security

Call the Russian bluff: The EU should accelerate the implementation of the REPowerEU targets by prior-

³³ French nuclear companies Orano and Framatome have a series of contracts with Rosatom for import of enriched uranium from Russia, export of reprocessed uranium to Russia, as well as a cooperation agreement for collaboration on the development of fuel fabrication and instrumentation and control (I&C) technologies.

itising the complete phaseout of Russian oil and gas supply to Europe. By providing derogations to the oil embargo and closing its eyes to rising Russian LNG imports, the EU allows individual member states to profit from their special relationship with Russia, undermining European unity. The EU has a political obligation to accept a possible surge in energy prices and convince member states to stop buying Russian gas even if this means short-term economic pain.

The EU should retake control over its energy and climate security without relying on luck for external factors such as weather conditions or the global gas market dynamics. A pro-active European energy security strategy is important not just for the EU's immediate foreign-policy objectives but also for the bloc's longer-term geopolitical and climate goals. A recession in the second half of 2023 is a real possibility for Europe, which needs to grit its teeth in return for the ultimate reward of sidelining Russia and protecting EU interests. As in Judo, Putin's favourite sport, Europe needs to knock the Kremlin off balance by accelerating the phase-out of Russian gas.

Strengthening resilience: The EU needs to step up its efforts to enhance the security of supply infrastructure for storing, importing, and transporting natural gas within Europe. This would mitigate potential supply disruptions in the immediate aftermaths of a full Russian gas phaseout. More importantly, it will prevent a market panic and skyrocketing prices because European countries would be better prepared to coordinate gas-sharing solidarity agreements. In addition, the EU should address the glaring governance loopholes in implementing the mechanisms already in place (e.g. solidarity agreements, the EU Energy Purchase Platform and the full integration and liberalisation of the EU gas market) and the reluctance of member states to cooperate on energy security.

A key element for the success of Europe's energy decoupling from Russia will be the **alignment of EU and U.S. energy and climate security priorities** to speed up the diversification of natural gas supply. The U.S. should greenlight the expansion of the country's LNG export capacity and strategic supply agreements with the EU's most vulnerable countries to gas supply shocks including Germany, Italy, the land-locked Central European countries, the Baltics and the states along the Turk-Stream gas pipeline. The agreements should, however, be flexible and limited to 5 years as to prevent a gas lock-in that undermines the long-term commitments to the decarbonisation of the U.S. and European economies.

Finding alternative supply and optimising market outcomes, however, will be insufficient to bridge the gap from eliminating the Russian gas from the market. There is no way around a slew of steps within EU countries to lower demand for gas. These range from setting limits on energy use in buildings to compensating industrial users for forgoing some of their contracted supplies. Energy savings promise immediate and broad rewards. Besides reducing Russia's capacity to weaponize gas, such actions enhance the EU's geopolitical independence, fight climate change and help consumers' finances.

Long-term gas exit: The energy crisis has revealed that natural gas is an unsustainable transition fuel. Europe's heavy reliance on it to balance renewables exposes the region to high costs and price volatility. To address the crisis in the long run, Europe must reduce dependence on natural gas by promoting energy efficiency, fuel switching, and deep electrification with renewables. As a first step, Europe should accelerate the gas phase-out in power generation by boosting the uptake of renewable energy through better governance of the investment process. The gas exit would also require a faster transition across all sectors, not just electricity, using viable alternatives to natural gas. Investments should focus on green hydrogen and storage technologies, rather than expanding gas infrastructure. Early investments in hydrogen-ready capacities after 2030 and prioritizing storage will ensure a faster transition and efficient power demand coverage.

Strengthening Sanctions Enforcement

Tighten the screws: The EU urgently needs to strengthen the enforcement of its existing sanctions to minimise the possibility for sanctions evasion. First, all derogations to the embargo should be lifted as they are not justified by objective concerns for the security of supply of EU member states. Supporting an external audit and requesting specific timeline and investment commitments from refiners for addressing the supposed technical obstacles for using non-Russian crude would be a powerful leverage for negotiating an early end for the derogations.

Second, there should be stricter monitoring of oil markets to red flag evasion tactics and immediate actions to stop ongoing ship to ship transfers, the use of a dark fleet of tankers to transport Russian oil, or the setting up front companies trading or servicing Russian oil transactions in Europe.

Third, secondary sanctions would significantly limit the incentive for non-EU/G7 countries to keep buying Russian oil. The reduction in the Russian share on the global oil market could raise prices in the short run. However, this would tempt OPEC producers to boost supply to cover the gap, bringing the market into equilibrium. This will have the added effect of curbing OPEC's attempt to coordinate a massive cut in production. In addition, with cooled electricity and gas prices, the inflationary effect of higher oil prices in the short run would have a much more muted effect on the European economy.

Enhanced coordination: The EU's enhanced monitoring capacity would depend on improving the cooperation with ship-tracking agencies, civil society watchdogs, whistle-blowers and investigative journalists closely monitoring the activities of Russian companies and their European intermediaries. In addition, there is an urgent need for better coordination of data exchange and enforcement actions by national customs and coast guard authorities.

Stronger enforcement capacity should come hand in hand with targeted actions for ensuring EU companies comply with sanctions. Such measures include more regular audits and stricter liability principles, especially for shipping and insurance service providers. Proof of compliance should rely less on attestations and more on evidence-gathering with strict documentation requirements across the whole value chain. The penalties for sanction evasion should also be strengthened and harmonised across EU member states.

Price cap with teeth: To become a workable instrument, the price cap mechanism needs to lower the cap level for crude and products. For crude a price below USD 40 per barrel – the breakeven price for the Russian budget before the war, would not only hurt Russia's finances, but is a realistic assessment of market trends, considering how Indian refiners have already been able to get Russian crude prices well below USD 40 per barrel.

Expand the scope of sanctions: The EU should consider expanding the scope of sanctions to include natural gas. While blocking Russian LNG exports to Europe is

unlikely to hurt consumers as most of that gas goes to markets with many alternative suppliers (i.e. Spain, France, Italy, Portugal, Belgium), stopping Russian pipeline gas imports would be much more challenging, especially in the case of Central and Eastern Europe, where dependence on Russian gas remains high. A sanctions regime with targeted derogations for the most vulnerable countries would be an appropriate approach. Such exemptions should, however, be tied to a clear timeline for the phaseout of long-term natural gas contracts by 2025 and specific steps for lowering overall natural gas demand.

The missing piece: Similar to the gas market, banning Russian nuclear energy altogether will be difficult. Nevertheless, it is crucial for the EU to agree on a clear, common timeline for nuclear fuel diversification and a gradual, well-planned phase-in of sanctions on Russian nuclear companies servicing the Russia-built reactors in Europe. A first step will be to discontinue Russia-led nuclear power plant construction and modernisation projects such as the Paks II deal in Hungary. In addition, European utilities should be banned from extending their existing long-term contracts for Russian nuclear fuel delivery beyond 2025. When contracts have longer maturity, as in Finland and Slovakia, governments should renegotiate the terms of the contract as to gradually diversify away from Russian fuel. Compensation mechanisms for utilities should be put in place to minimise the impact of these actions on the companies' finances.

Dismantling the networks of influence: Decoupling from Russia would not be possible without targeting the state capture networks that have enabled strategic partnerships between Russian and European energy companies. The EU's economic security and strategy for the new global realities require sophisticated mechanisms for screening and halting overt and covert Russian strategic investments in Europe linked to state-owned companies and oligarchic networks close to the Kremlin. Such screening needs to be complemented by measures for ensuring intra-EU corporate ownership transparency and the strengthening of the European anti-money laundering infrastructure and efforts on reducing the Kremlin's hidden economic footprint in Europe.