FOURTH YEAR

OF FULL-SCALE INVASION:

RUSSIAN FOSSIL FUEL REVENUES TANK TO 27% BELOW PRE-INVASION LEVELS

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Fourth year of full-scale invasion: Russian fossil fuel revenues tank to 27% below pre-invasion levels

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About CREA

The Centre for Research on Energy and Clean Air (CREA) is an independent research organisation focused on revealing the trends, causes, and health impacts, as well as the solutions to air pollution. CREA uses scientific data, research, and evidence to support the efforts of governments, companies, and campaigning organisations worldwide in their efforts to move towards clean energy and clean air, believing that effective research and communication are the keys to successful policies, investment decisions, and advocacy efforts. CREA was founded in Helsinki and has staff in several Asian and European countries.

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Despite Russia's reliance on sanctioned 'shadow' tankers, crude export volumes 6% above pre-invasion

Key findings

- In the fourth year of the Kremlin's full-scale invasion of Ukraine, Russia earned EUR 193 bn in fossil fuel export revenues, a 19% year-on-year drop and 27% below pre-invasion levels.
- Russian revenues from crude oil exports dropped by a significant 18% year-on-year (EUR 85.5 bn) while volumes fell by 6% (215 mn tonnes).
- Hungary and Slovakia's combined imports of Russian crude oil increased 11% in the first 10 months of 2025 compared to the same period last year — a direct violation of the EU sanctions exemption.
- Oil product export volumes witnessed an 8% year-on-year drop, with revenues plunging more steeply by 27% to EUR 49.9 bn — the lowest levels since 2022.
- A total of 312 unique vessels were sanctioned in the fourth year of the full-scale invasion, more than the 253 sanctioned in the first three years combined.
- The number of 'shadow' vessels operating under false flags grew from 12 at the start of 2025 to a peak of 109 in October — a more than nine-fold increase. Vessels flying false flags transported an estimated EUR 3.1 bn of Russian crude oil and oil products through EU waters, passing through the Danish Straits, the English Channel and the Strait of Gibraltar in 2025.
- In the fourth year of the full-scale invasion, the EU's imports of Russian fossil fuels totalled EUR 14.5 bn, a massive 36% year-on-year reduction. These drops were led chiefly by a 33% reduction in Russian natural gas exports to the EU that fell to 37 bcm (EUR 11 bn) — the lowest levels since 2022.
- Exports of LNG from Russia's Baltic terminals, Vysotsk and Portovaya, collapsed 96% and 77%, respectively, after being sanctioned in early 2025; these terminals, reliant on Western services and European buyers, proved vulnerable to sanctions.

- Russian coal export volumes rose 8% year-on-year, which was directly proportional to a similar 7% year-on-year increase in export revenues.

Introduction: 1,461 days of a full-scale invasion funded by over one trillion euros of fossil fuel sales

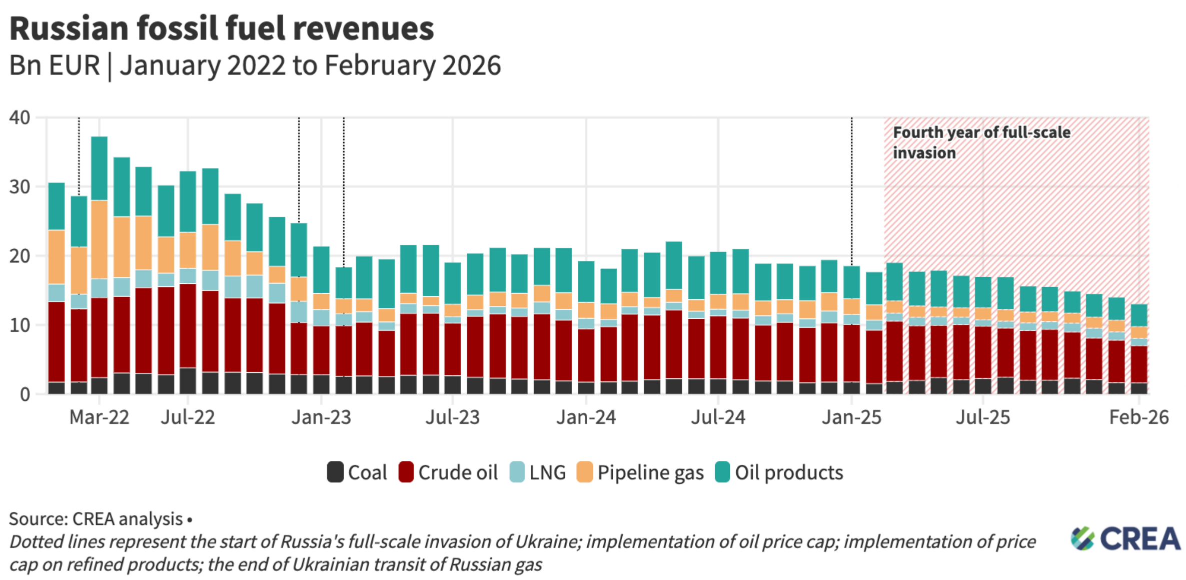

Figure 1 — Russian fossil fuel revenues, by commodity

In the fourth year of the full-scale invasion of Ukraine, Russia's revenues from fossil fuel exports totalled EUR 193 bn, a 19% year-on-year drop and 27% below pre full-scale invasion levels. Also in the fourth year of the invasion, the EU's imports of Russian fossil fuels totalled EUR 14.5 bn, a massive 36% year-on-year reduction. Long regarded as Russia's energy stronghold, the bloc has systematically shifted away from Moscow's fossil fuels, diversifying to reliance from other sources.

While outliers like Hungary and Slovakia continue to guzzle Russian oil, and Russian liquefied natural gas (LNG) still finds a haven in EU ports under long-term contracts, the implementation of REPowerEU's tightened regulations at the beginning of February 2026 finally addressed the long-awaited withdrawal of Russian gas from Europe. A sustained push toward complete energy independence by increasing reliance on clean energy must come next. And it will only be achieved by streamlining permissions, managing grid bottlenecks, electrification, and investing in energy storage, the lack of which points to ineffective policies to date.

US threats — mostly in the form of trade tariffs and diplomatic standoffs — against countries like India, China and Turkiye had limited effect in terms of reducing their consumption of Russian oil. Where the threats failed, sanction actions succeeded.

The EU’s sanctions on refined oil made from Russian crude, combined with the US Office of Foreign Assets Control’s (OFAC) sanctions on the two Russian oil majors Rosneft and Lukoil, almost immediately resulted in Russian crude sales, to India in particular, plummeting to the lowest levels since the full-scale invasion of Ukraine. In the fourth year, India’s Russian crude imports, totalling EUR 31.6 bn, saw a 9% decrease in volumes, while China’s imports (valued at EUR 43 bn) reduced by 14%.

Adjustments, variations, and circumventions to sanctions have continued over the last year, with the ‘shadow’ fleet now a universally recognised entity and its role in Russian oil sales remaining unabated. Russia’s slow destruction of established maritime norms — whether through the exploitation of new weakly regulated registries or through the increased use of false flagged vessels — has raised many concerns throughout the year. While vessel sanctions have been a feature throughout the year, with Ukraine’s allies Australia, Canada, New Zealand joining the EU, UK and the USA in enacting them, the listings themselves have had limited effect in restricting Russia’s total volumes transported each month.

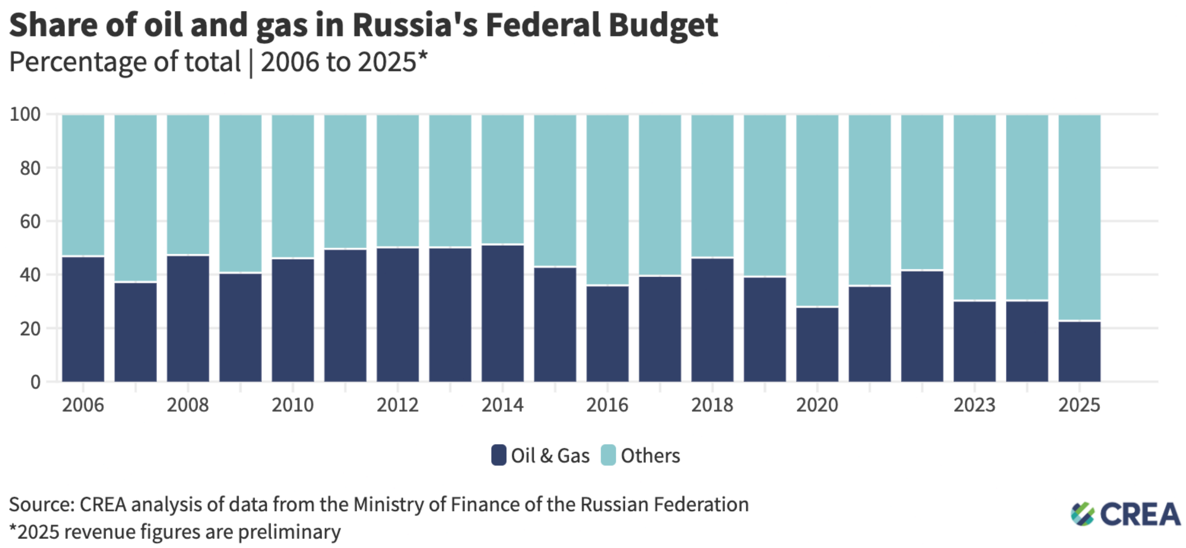

Figure 2 — Share of Russian Federal Budget revenues, by source

At the same time, sanctions have considerably reduced Russia's oil and gas revenues, which fell to RUB 8.48 tn in 2025. This accounted for only about 25% of the Federal Budget's revenues — a significant departure from the historical norm of 30-50%. The decline was mainly due to weaker oil-linked taxes. A lower average Urals price reduced the mineral extraction tax (MET), and a stronger ruble for much of the year lowered ruble-denominated receipts, despite export volumes remaining stable. Gas revenues did not offset these losses, as export duties stayed low after the permanent loss of most pipeline exports to Europe. As a result, non-oil and gas revenues have become more important, rising to nearly RUB 28.8 tn and now representing the majority of the budget.

Russian oil flows remain stable: Crude remains key driver for fossil fuel revenues

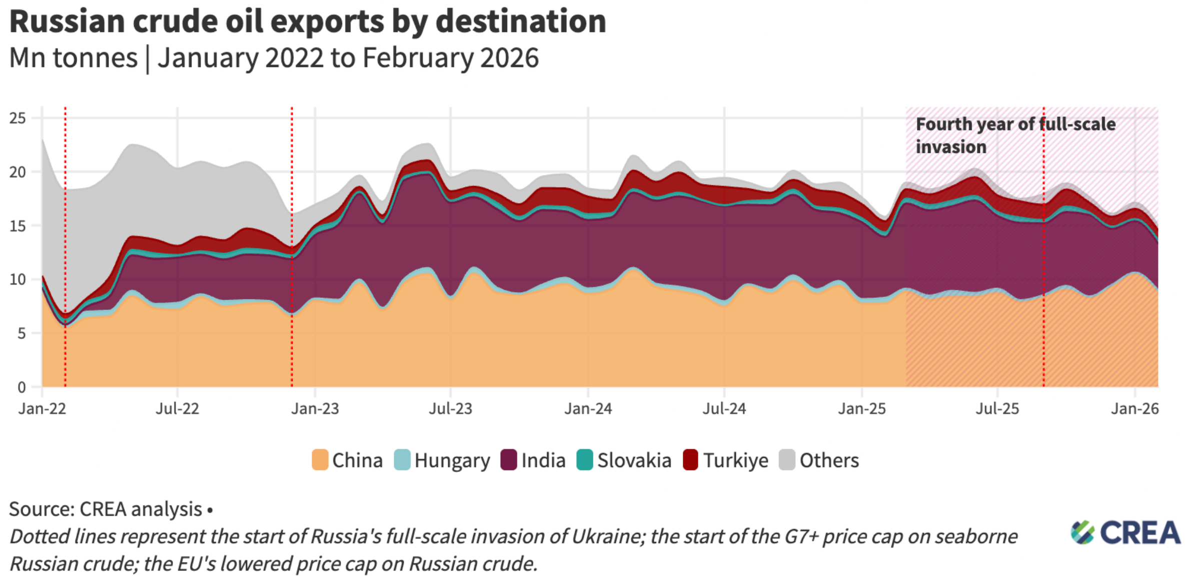

Figure 3 — Russian crude oil exports since the full-scale invasion

In the fourth year since the full-scale invasion, Russian revenues from crude oil sales dropped by a significant 18% year-on-year (EUR 85.5 bn) while volumes dropped by a less stark 6% (215 mn tonnes). Export volumes continued to remain 6% above pre-invasion levels, underscoring how G7+[1] sanctions on the 'shadow' fleet have failed to cut supplies, even while forcing deeper price discounts on their oil sales. The three largest buyers — China, India and Turkiye — accounted for 93% of Russia's crude exports in this period, receiving a total 201 mn tonnes valued at EUR 79.7 bn.

China was the single largest importer, buying a total of EUR 43 bn of Russian crude (104.3 mn tonnes). Their import volumes recorded a modest 2% year-on-year decline. Under closer inspection, their imports held steady between 8-9 mn tonnes per month throughout most of the fourth year, but spiked to 10.5 mn tonnes in January 2026.

US sanctions on Rosneft and Lukoil announced in October 2025 — which cut both companies off from the US banking system — have caused shifts in the trade. Chinese state

[1] In this report, sanctioning countries are referred to as G7+ countries which includes G7 countries, EU Member States, Australia, Norway, New Zealand and Switzerland.

oil giants PetroChina, Sinopec, CNOOC, and Zhenhua Oil reportedly paused purchases of Russian seaborne crude in October while assessing the risk of engaging with sanctioned entities. Seaborne crude sold by Lukoil and Rosneft to China collapsed from 3.6 mn tonnes in September 2025 to none in January 2026.

India, the second-highest buyer — and the single largest buyer of seaborne Russian crude — imported EUR 31.6 bn (81.7 mn tonnes) in the fourth year of the full-scale invasion. Indian import volumes dropped by 9% year-on-year, depressing sharply in the second half of the year after a stand-off with the US, resulting in India compromising on Russian crude purchases in an effort to offset the 25% trade tariff imposed on them.

Indian crude imports fell from a peak of 8.6 mn tonnes in June 2025 to 5.2 mn tonnes in December. A stop-gap recovery of volumes occurred in December just before OFAC sanctions on Rosneft and Lukoil kicked in, as Indian refiners chose to make the most of a deeper discount on Urals grade crude compared to the price of Brent. In January 2026, President Trump and Indian Prime Minister Narendra Modi announced a deal under which the US President said India had committed to phasing out Russian oil purchases in exchange for reduced US tariffs.

In the fourth year of the full-scale invasion, Turkiye's imports of Russian crude dropped 10% year-on-year to EUR 5.4 bn (14.6 mn tonnes). Monthly volumes fluctuated between 0.9 and 1.7 mn tonnes throughout the fourth year of the full-scale invasion, but fell sharply following OFAC sanctions on Russian oil majors. Seaborne crude from Lukoil and Rosneft collapsed from 1.1 mn tonnes in September 2025 to zero in December 2025 and January 2026 — signalling a complete exit of sanctioned Russian crude from the Turkish market.

While Russia found some new markets for its crude, these remained limited due to constraints on transport and import capacity. Syria and Brunei were the two largest new markets for Russian crude, importing a total of EUR 1.8 bn (4.7 mn tonnes) throughout the fourth year of Russia's full-scale invasion. While the duo's imports of Russian crude grew sixfold in the fourth year, in real terms, these volumes barely covered half of India's year-on-year decline (7.9 mn tonnes) in the same period.

Hungary and Slovakia’s continued dependence on Russian crude undermines EU measures for diversification

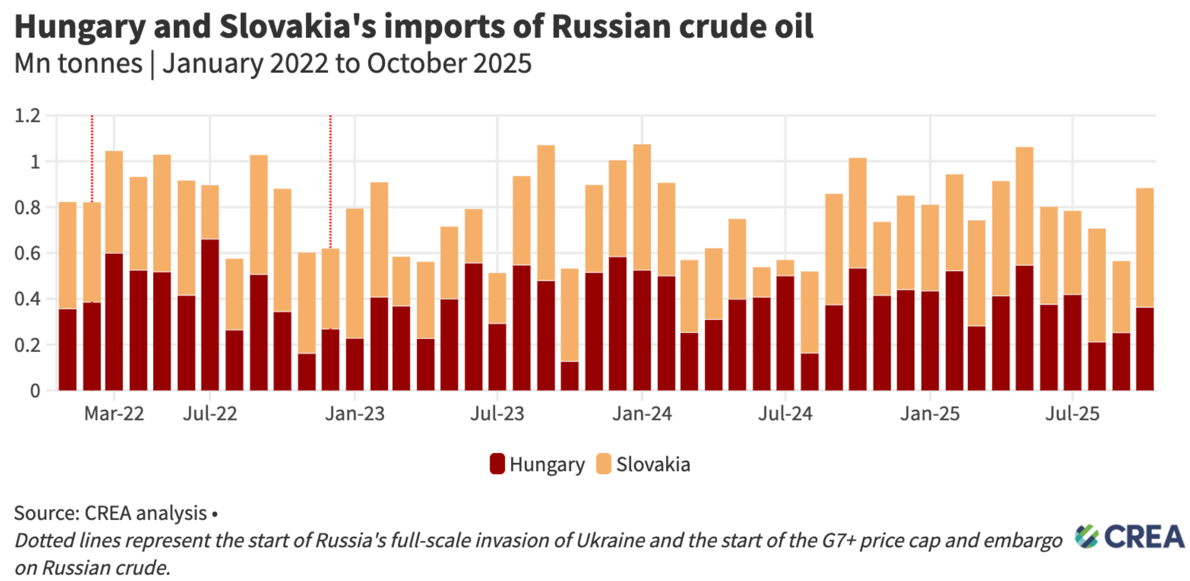

Figure 4 — Hungary and Slovakia’s imports of Russian crude oil

Hungary and Slovakia remain the only EU Member States still importing Russian crude oil via pipeline, exploiting a derogation granted under the [EU's sixth sanctions package in June 2022]. The exemption was intended to give these landlocked countries time to diversify[2]. Instead, Hungary has moved in the opposite direction — increasing its reliance on Russian crude from 61% in 2021 to 92% in the first ten months of 2025.[3] Slovakia made marginal progress, reducing its dependence from 96% to 86% over the same period. Hungary and Slovakia’s combined imports of Russian crude oil increased 11% in the first 10 months of 2025 compared to the same period last year.

The primary beneficiary of this continued reliance on discounted Russian crude oil is MOL, which owns the only refineries in Hungary and Slovakia. MOL has justified its continued reliance on Russian crude by claiming that the Adria pipeline — which supplies

[2] The derogation states that, ‘*Member States take all necessary measures to obtain alternative supplies so as to ensure that imports by pipeline of crude oil from Russia are made subject to the prohibitions as soon as possible*’.

[3] *Eurostat data for December 2025 remains incomplete while November 2025 showed a sharp drop in Russian pipeline flows to Hungary and Slovakia, coinciding with US sanctions on Rosneft and Lukoil in October 2025 and reported damage to the Druzhba pipeline. Despite Hungary being granted an exemption to the US sanctions, it remains unclear how quickly — or to what extent — Russian crude flows will recover. This analysis therefore considers only the first ten months of 2025.*

non-Russian crude from Croatia — lacks sufficient capacity, and that Croatian transit fees are extortionate. These are the same claims Hungary used to justify its exemption from the US sanctions on Rosneft and Lukoil.

Both claims are unfounded. The Adria pipeline has a transport capacity of 14.4 mn tonnes per year, enough to cover all Hungarian and Slovak refinery demand, proven by capacity tests in September 2025. The Croatian pipeline operator, JANAF, stated that lower flow rates reflected reduced MOL demand rather than infrastructure constraints.

Fears about higher transit fees are also unfounded, based on the evidence. Hungary paid an average monthly transit fee of EUR 12.2 per tonne for non-Russian crude transited via Croatia in 2024 — a 1.6% markup on the CIF (cost, insurance and freight) price. By contrast, Ukraine charges EUR 21 per tonne for Russian crude transiting its territory via the Druzhba pipeline — a 4.5% markup. Hungary paid 1.7 times more in transit fees to import Russian crude through a war zone than it would have paid for alternatives via Croatia.

Russian oil product revenues see a steep drop while volumes contract marginally

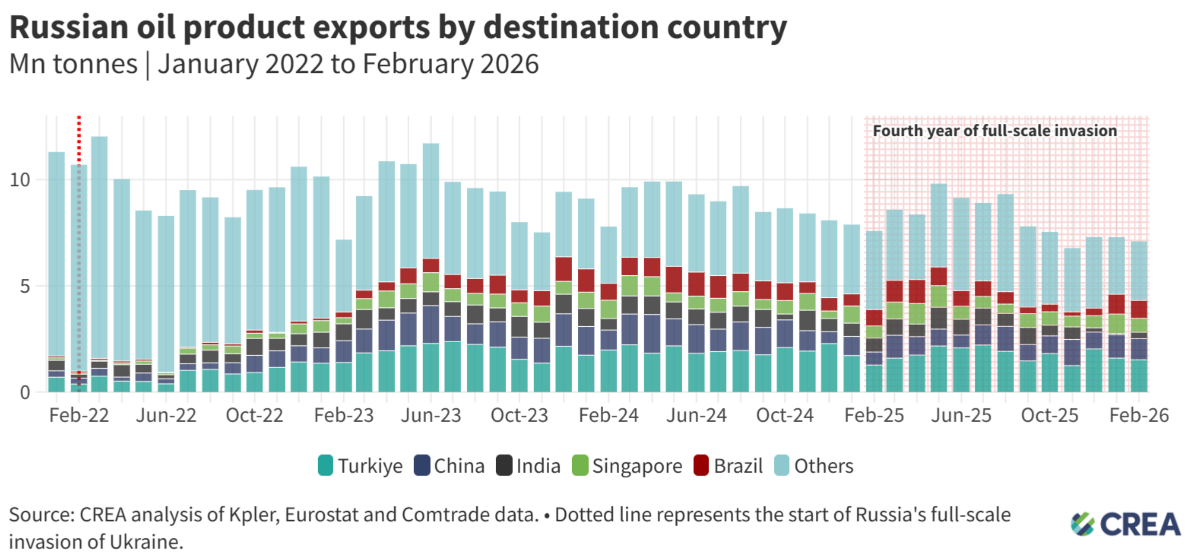

Figure 5 — Russian refined oil products exports since full-scale invasion of Ukraine

In the fourth year of Russia's full-scale invasion of Ukraine, their refined oil product exports witnessed an 8% year-on-year drop to 97.9 mn tonnes, with revenues plunging more steeply by 27% to EUR 49.9 bn — the lowest levels since 2022.

Turkiye accounted for 22% of Russia's total export volumes of refined products and was a steady market throughout the year. China was the second-largest buyer, purchasing 11% of Russia's total exports. Saudi Arabia (9%), Singapore (8%), and Brazil (8%) rounded off the top five buyers globally. An estimated 57% of Russia's total refined oil product exports were consumed by these top five largest buyers.

In stark contrast to Russian crude, its oil product exports have a much more diverse and far-ranging market, with as many as 58 countries having bought refined fuels from them through the course of the fourth year of the full-scale invasion. This is due to a variety of different reasons. The primary reason is the fact that unlike crude, which requires processing capacity, oil products arrive as partially or fully formed products for consumption, allowing more countries with capacity to import them. In addition, wider markets are incentivised by the deep discounts available on Russian products. An uneven enforcement of the price cap policy, and a growth in the re-export of these same products to sanctioning countries has also facilitated their flow freely.

Suspected re-exports of Russian fuels to EU countries — specifically from terminals in Turkiye and Georgia — remain a cause for concern, as they not only boost Russia's revenues but also threaten sanctions enforcement among Ukraine's allies.

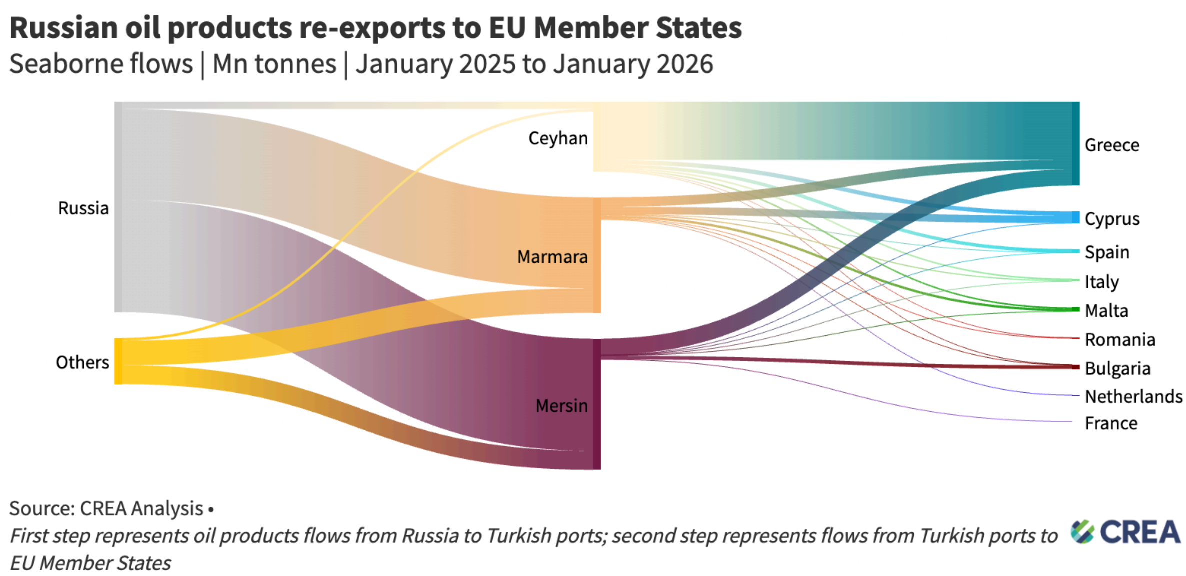

Figure 6 — Russian refined oil products re-exports from Turkiye to the EU

Between the end of January 2025 and January 2026, 82% of seaborne refined oil product imports to the Turkish ports of Ceyhan, Marmara, and Mersin came from Russia (totalling 13.1 mn tonnes and worth EUR 7.5 bn). During this 12-month period, these three ports exported EUR 3.3 bn (6.7 mn tonnes) of refined oil products to EU Member States.

Over three-quarters of the total refined oil products destined for the EU from these ports ended up in Greece. Their imports totalled EUR 2.54 bn, with over 68% of the total volume purchased by the MOH Corinth refinery. In addition to Greece, Cyprus (EUR 289 mn), Bulgaria (EUR 179 mn), Malta (EUR 104 mn), and Spain (EUR 92 mn) are the top five destinations for exports from Turkish ports importing Russian oil products.

Much like Turkiye, Georgia has also emerged as a suspicious backdoor for Russian oil products to be re-exported to sanctioning jurisdictions. In the fourth year of the full-scale invasion, 83% of the port of Batumi's diesel imports (97,000 tonnes valued at EUR 64 mn) came from Russia, four times more than the volumes in 2022. The port imported a mere 19,000 tonnes of diesel from non-Russian suppliers but exported more than 11 times that amount to the UK and EU — regions that accounted for 86% of the port's total seaborne diesel exports. Additionally, the nearby Kulevi refinery, also on Georgia's Black Sea coast, runs exclusively on Russian crude oil and transports refined products by rail to the port of Batumi for export. The EU has proposed sanctions on the Kulevi refinery as part of its 20th sanctions package.

In 2025, the EU and the UK imported EUR 417 mn of refined fuels from the ports of Batumi and Kulevi. Since the vast majority of crude and oil products supplied to these ports are of Russian origin, the EU and UK's imports from them likely consist of Russian molecules — either via refining from Russian crude, or because they are relabelled or blended from Russian products.

Revenues impacted by sanctions, but new circumventions arise & loopholes remain

The fourth year of the full-scale invasion saw arguably the biggest evolution in terms of sanctions on Russian fossil fuels by allies of Ukraine. While the previously established trend of placing 'shadow' vessels under sanctions continued unabated, there were also severe sanctions on Russian oil majors like Rosneft and Lukoil, as well as the EU's ban on oil products made from Russian crude. Each of these significantly impacted Russian oil revenues, oil prices, and engagement in new markets. Moreover, they also provoked newer circumvention techniques, evolution in older plays and created seismic shifts in Russian oil flows at the end of the year.

'Shadow' vessel operations evolve and adapt to life under sanctions

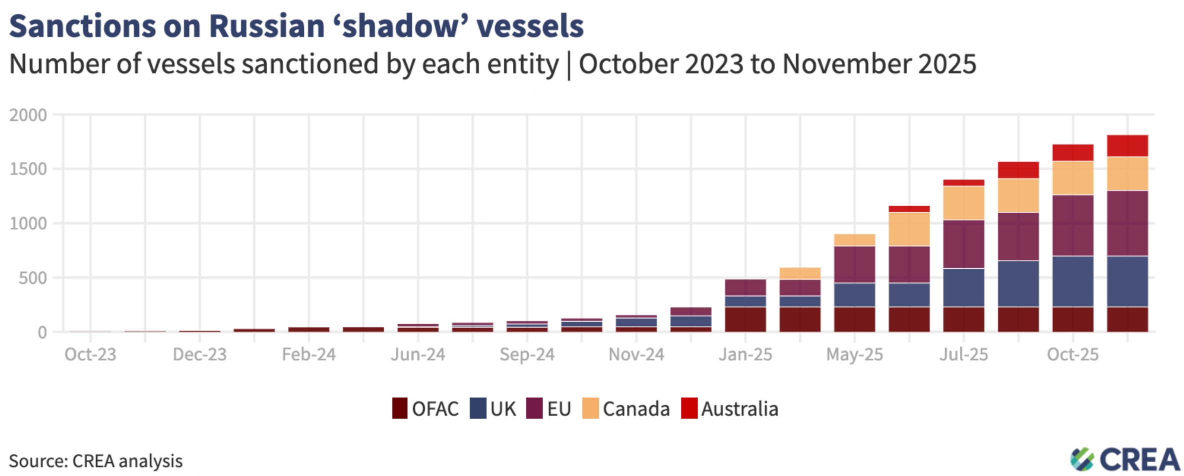

Figure 7 — Russian 'shadow' tankers under sanctions

The EU, UK, US, Australia, and Canada have collectively sanctioned 565 unique vessels that have carried Russian fossil fuels since the full-scale invasion. In the fourth year of the full-scale invasion alone, these countries sanctioned a total of 312 unique vessels, more than the 253 sanctioned in the first three years combined. The EU led with 397 designations, followed by the UK (341), Australia (196), and Canada (182).

There has been a palpable shift in the sanctioning authorities' approach towards 'shadow' vessels throughout the year.

OFAC, the first entity to sanction Russia's 'shadow' fleet with 133 designations in the third year, has not sanctioned any vessels since January 2025, focusing instead on tariff-based threats to curtail the flow of Russian crude.

This retreat has forced the EU and UK to fill the gap — only three of the 172 vessels OFAC has sanctioned remain designated by the US alone, with European sanctions having subsequently targeted almost all OFAC-listed vessels.

There has also been a significant increase in the coordination between the three major sanctioning authorities. Of the 562 unique vessels sanctioned by OFAC, the UK and the EU, 141 (25%) are targeted by all three. Only around a quarter (132 vessels, 23%) remain designated by just one jurisdiction. The EU and UK have aligned significantly closer, with a total of 402 vessels sanctioned by both.

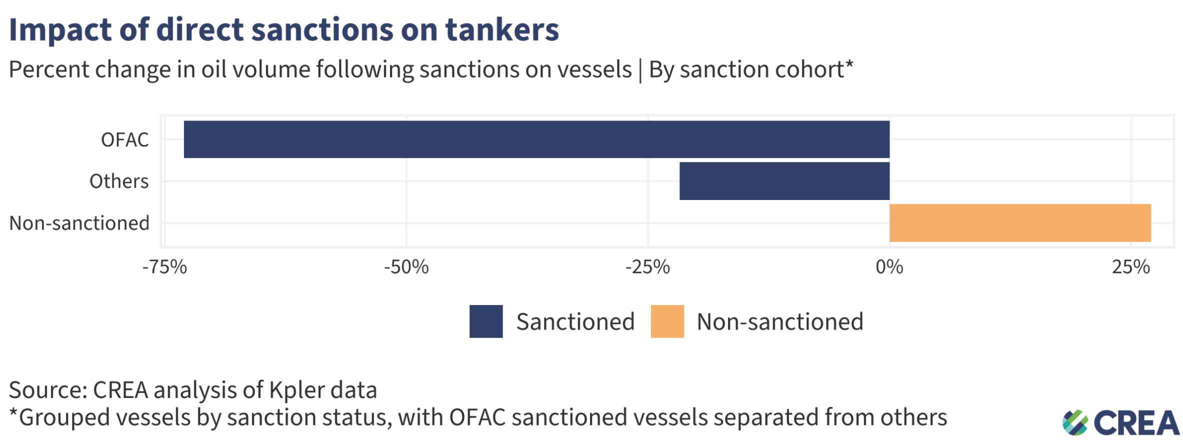

Figure 8 — Effect of sanctions on volumes of Russian oil transported, by designating entity

This improved coordination, however, has not translated into proportionate enforcement. There are gaps between designation and enforcement, and the increase in vessel sanctions has not had a lasting effect on the volume of Russian crude exported because many sanctioned vessels continue to operate largely unabated.

CREA analysis found that OFAC sanctions resulted in a 73% drop in oil transported by vessels after being sanctioned, compared to the twelve months prior. 'Other' sanctioned tankers — which include those listed by the EU, UK, Australia, and Canada but not by OFAC — saw an average 22% drop in the volume of oil transported post sanctions.

Conversely, non-sanctioned tankers transported 27% more Russian oil per month across the cohort of non-designated vessels. The increase in the quantity of shipped Russian oil by non-sanctioned tankers has enabled Moscow to maintain stable total export volumes and compensate for lower quantities transported on sanctioned tankers.

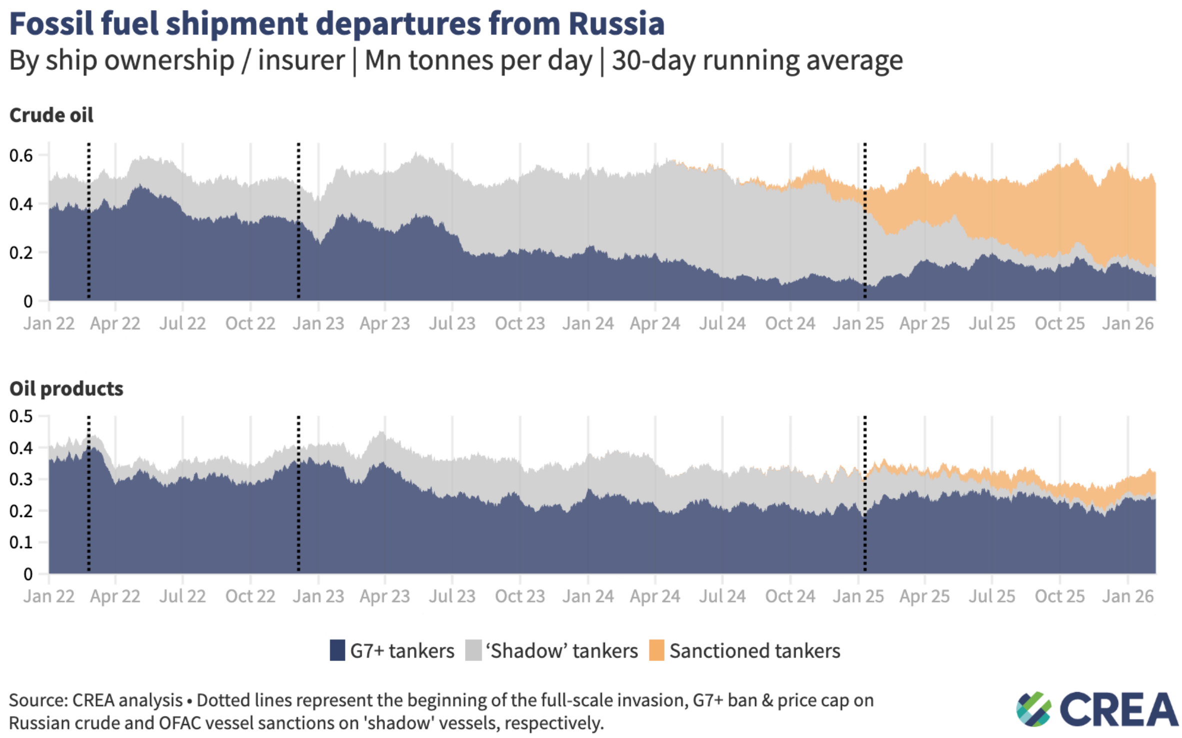

Figure 9 — Vessel ownership/insurance when carrying Russian crude and oil products

In the first quarter of 2024, sanctioned tankers transported virtually none of Russia's seaborne crude exports. By the fourth quarter of 2025, they carried over 60% — a striking illustration of how Russia remains dependent on sanctioned tankers and has been unable to replace them with unsanctioned tonnage. For Russian crude, volumes transported by G7+ owned or insured tankers held relatively steady at around 29% through the year.

The destinations of Russian crude vary significantly depending on who carries it. China received EUR 26 bn (67 mn tonnes) worth of crude oil through the year. Two-thirds of this volume — the highest share among major buyers — was delivered by sanctioned tankers and just 13% on G7+ insured vessels, reflecting Chinese buyers' greater tolerance for sanctions risk.

India received a roughly even split of oil carried by sanctioned vessels and G7+ vessels, indicating that for most of the year, the ports remained open to all fleet categories. On the other hand, Turkiye appeared unwilling to risk sanctions exposure and received just EUR 100 mn (280 mn tonnes), the equivalent of just 2% of its total imports, on sanctioned vessels in the fourth year compared to EUR 3.6 bn (73%) on G7+ owned vessels.

False flagging emerges as a new countermeasure towards vessel sanctions

False flagging has emerged as a significant circumvention strategy in the fourth year of the full-scale invasion. The number of 'shadow' vessels operating under false flags grew from 12 at the start of 2025 to a peak of 109 in October — a more than nine-fold increase — before declining to 81 by January 2026. In January, a mere three vessels adopted false flags, compared to 32 in July 2025.

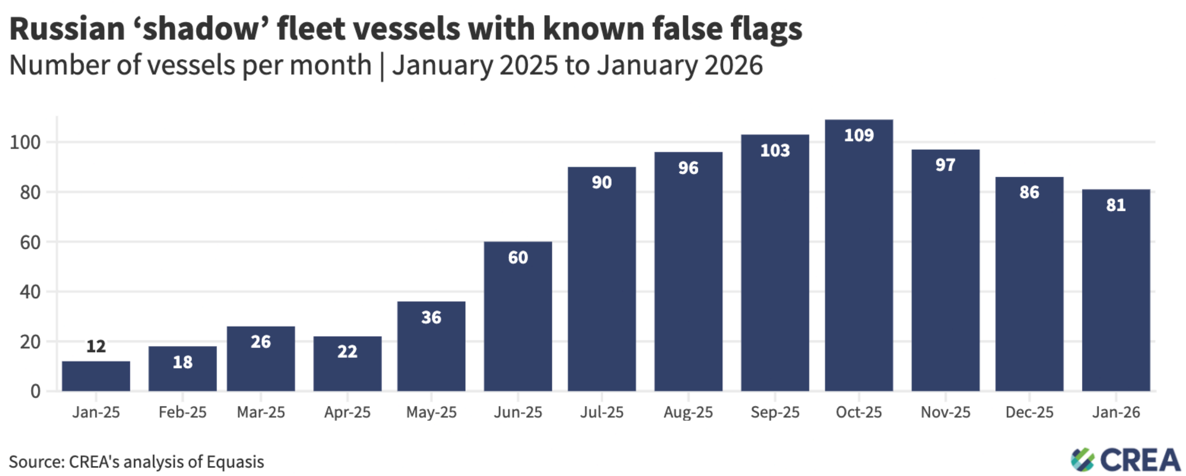

Figure 10 — Russian 'shadow' vessels with known false flags, January 2025-January 2026

The decline from the peak is due to a number of factors. The first is the increased targeting of false flagged vessels — by the French navy as well as by the US Coast Guard.

The decline in false flagging coincided with a notable and concerning trend — the sharp increase in vessels registering directly under the Russian flag. At the start of 2025, 106 vessels in the 'shadow' fleet were flagged by Russia. This figure remained relatively stable through the first half of the year, reaching 111 by June before climbing upwards from July and reaching 120 by October. In January 2026, 153 'shadow' vessels were flagged directly under the Russian flag.

While false flagged tankers operate entirely outside the norms of maritime governance, Russian-flagged vessels are registered with a legitimate flag state — albeit one that is itself the target of sanctions. These shifts towards Russian flags signify an open acknowledgement of the Russian connection rather than fraudulent concealment.

CREA analysis found that vessels adopting the Russian flag and those operating under false flags are largely two separate populations rather than a direct migration from one to the other. Of the 33 vessels that switched to a Russian flag in the second half of 2025, only 10 had previously operated under a false flag at any point. The remaining 23 had never used a false flag, instead coming from other verified registries.

Only 10 vessels have ever made a direct switch from a false flag to a Russian flag, with eight of those occurring in the second half of 2025 and two more in January 2026. These direct switches came from Gambia, Benin and Comoros (3 vessels each), and Guyana (1).

The combined count of vessels operating under either false flags or the Russian flag remained broadly stable between October 2025 and January 2026 — 229 and 234, respectively. This suggests that while enforcement pressure may be pushing some operators away from false flags, the overall pool of vessels operating outside mainstream Western registries has held steady.

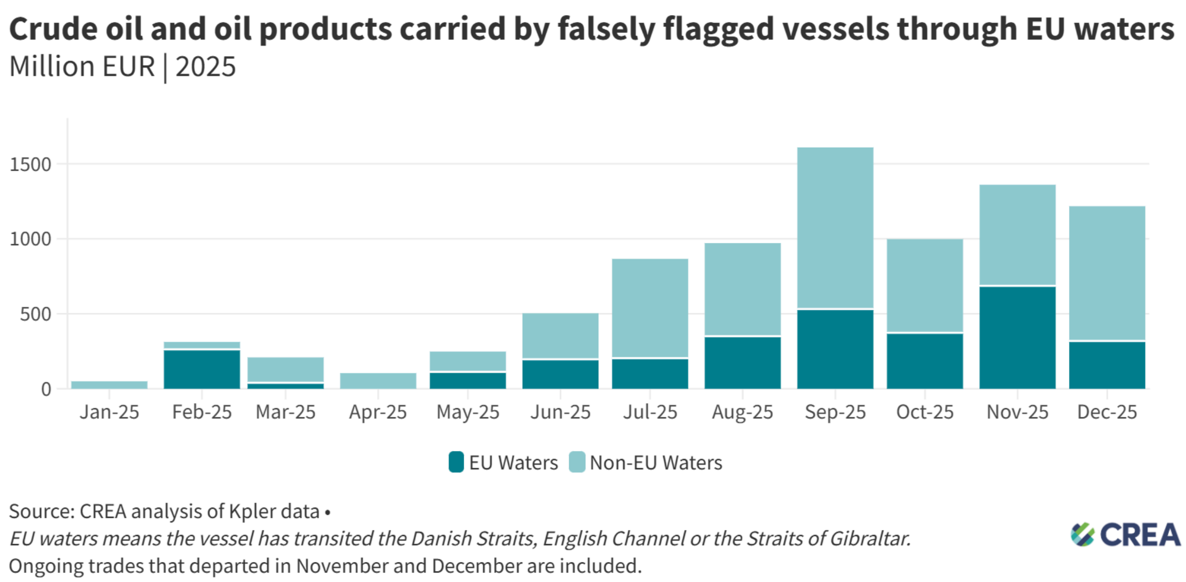

Figure 11 — Oil carried by false flagged vessels through EU waters in 2025

In total, vessels flying false flags transported an estimated EUR 8.4 bn of Russian crude oil and oil products in 2025 — up from EUR 4.9 bn recorded in the first three quarters alone. Over one third of this (EUR 3.1 bn) transited EU waters, passing through the Danish Straits, the English Channel, or the Straits of Gibraltar. The Straits of Gibraltar and the Danish Straits saw the highest values at EUR 2.9 bn and EUR 2.7 bn, respectively.[4]

False flags have not only been used when transiting EU waters. There has been a rise in the volume of oil departing Russia's Eastern ports in the fourth year of the full-scale invasion, with an estimated EUR 2.8 bn leaving these Russian ports and being transported across the globe.

[4] Individual maritime chokepoint values are not additive. A single voyage may transit multiple EU chokepoints (e.g., the Danish Straits, the English Channel, and the Strait of Gibraltar), and is counted under each strait it passes through. The total EU waters figure counts each voyage only once, regardless of how many straits it transited.

Refining loophole flows contract, but uneven sanctions continue to allow steady flows globally

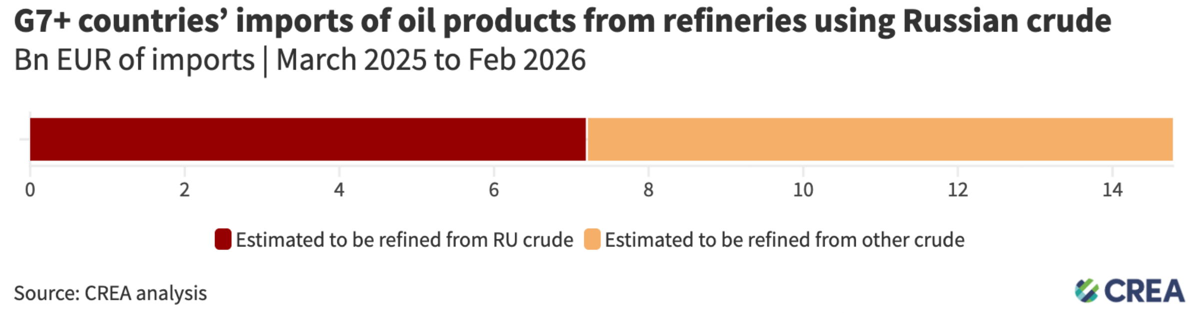

Figure 12 — G7+ imports of oil refined from Russian crude

In the fourth year of the full-scale invasion, G7+ countries imported EUR 14.7 bn (25.7 mn tonnes) of oil products from refineries using Russian crude. This represented a 9% year-on-year decrease in their imports from these refineries. An estimated EUR 7.2 bn (12.5 mn tonnes) of these oil product imports were estimated to have been refined from Russian crude.

Ironically, while Ukraine's allies reduced their imports from these refineries, the refineries' increased intake of Russian crude in the first half of the year meant that more oil made from Russian crude actually entered the energy systems of sanctioning countries. There was a 12% year-on-year increase in the volume of oil made from Russian crude that entered G7+ countries in this period.

The EU's sanctions on this trade — in conjunction with sanctions on the Vadinar refinery — announced in July meant buyers rushed to fill up on discounted oil before the bans kicked in on 21 January 2026. In October 2025 for example, three months after the announcement, EU imports totalled 1.2 mn tonnes, almost double that in the same month the prior year. Slowdowns did ensue though, with volumes in January 2026 almost halving when compared to the prior year.

Australia remained the single largest importer among sanctioning countries, purchasing a total of EUR 3.4 bn of oil products from refineries using Russian crude. An estimated EUR 1.6 bn of their imports were refined from Russian crude. They were followed by the USA, who imported EUR 1.8 bn (EUR 799 mn made from Russian crude) of oil products from refineries using Russian crude in this period.

The lack of coordination among Ukraine's allies on sanctions against this trade has seen new refineries cropping up, increasing their imports of Russian crude, while also increasing supplies to G7+ countries. One example of this was the Hengyi refinery in Brunei, which increased its Russian crude stock from 25% in the third year of the full-scale invasion to 60% in the fourth. The refinery exported EUR 1.5 bn of oil products to sanctioning countries in the fourth year, with 98% of their exports delivered to Australia.

The future of Russian gas: Logistical factors constrain expansion and magnify EU leverage

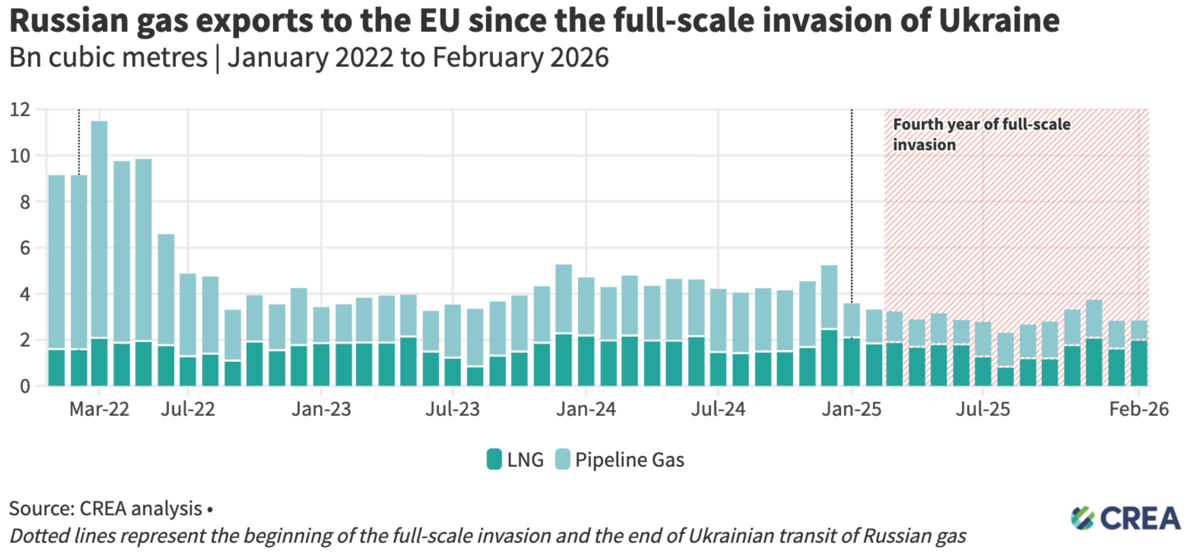

Figure 13 — Russian gas exports to the EU since the full-scale invasion

In the fourth year of the full-scale invasion, Russian natural gas exports to the EU fell to 37 bcm (EUR 11 bn), a 33% year-on-year decline and the lowest levels since 2022. The contraction was driven almost entirely by pipeline gas exports of which declined by 46% — from 31 bcm (billion cubic metres) to 17 bcm — following the termination of transit via Ukraine at the end of 2024. Pipeline exports became fully concentrated through the TurkStream pipeline, leaving Russia dependent on a single remaining pipeline corridor into the EU.

In sharp contrast, Russian LNG exports to the EU declined by a much lower 9% — from 22 bcm to 20 bcm. This firmly established the commodity as the dominant channel for Russian gas supplies to the EU for the first time since the start of the full-scale invasion. LNG accounted for over half of the Russian gas imports into the EU in the fourth year of the full-scale invasion, while pipeline gas fell to 47%, well below the 75% share observed at the outset of the invasion.

Russian LNG imports were highly concentrated geographically. France remained the largest importer (8 bcm), followed by Belgium (5.8 bcm), Spain (3.7 bcm), and the Netherlands (just under 2 bcm), with smaller volumes delivered to Portugal and Italy. Once regasified and injected into the European transmission network, LNG flows freely across borders, making the importing country a poor proxy for the final destination. For example, Germany's SEFE (the former Gazprom subsidiary nationalised after Russia's full-scale invasion of Ukraine) holds a long-term LNG contract of 3.7 bcm that enters the EU gas system via France's Dunkerque LNG terminal.

Russian LNG exports remain structurally dependent on exports to the EU

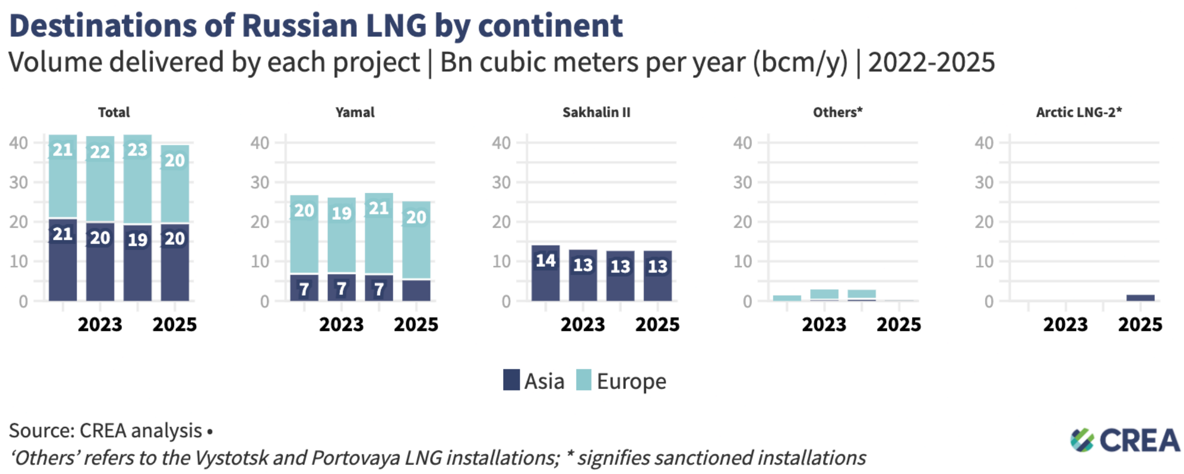

Figure 14 — Destination of Russian LNG, by continent

At the installation level, Russia's LNG exports are now dominated by two facilities with distinct market orientations. Yamal accounts for 62% of total exports, with roughly 75% still flowing to the EU. Sakhalin II, in contrast, remains Asia-focused: in the fourth year, exports were broadly stable at around 12.7 bcm, directed mainly to Japan and other Northeast Asian buyers.

Sanctions' effects across Russia's LNG portfolio have been highly uneven. Projects reliant on Western services and European buyers proved particularly vulnerable: exports from the Baltic terminals Vysotsk and Portovaya collapsed by 96% and 77%, respectively, after access to Western shipping, insurance, and financing was curtailed in the four years of sanctions on Russia.

By contrast, the fully sanctioned Arctic LNG project generated limited but observable exports, reflecting not a failure of sanctions but the willingness of some actors to use improvised logistics, opaque transshipments, and legally risky trading. Overall, sanctions have sharply constrained exposed projects while remaining imperfect against strategically important installations that attract high-risk circumvention efforts.

Rerouting constraints on LNG create logistical challenges for a fallback strategy

The EU's formal decision to fully phase out Russian gas marks a structural break in Russia's export model. Under the agreed timeline, and barring narrowly defined exemptions, imports of Russian LNG will cease by the end of 2026, while pipeline gas imports will be fully banned by autumn 2027. This removes Russia's largest and most accessible gas market.

Based on 2025 data, replacing the EU market would require Russia to redirect roughly 20 bcma (billion cubic metres per annum) of LNG, in addition to pipeline volumes that are already declining sharply. With no alternative to European demand and no new westbound infrastructure, Asia is the only market with sufficient theoretical scale to absorb these displaced volumes.

This rerouting pressure already applies to Russia's existing LNG portfolio. Russia's operational liquefaction capacity is concentrated in four installations: Yamal LNG (23.7 bcma), Sakhalin II (13 bcma), Portovaya LNG (2 bcma), and Cryogas-Vysotsk (0.9 bcma). With the EU market closed, LNG from Yamal, Portovaya, and Cryogas-Vysotsk — which have historically relied on European buyers, services, and logistics — would need to be redirected to Asia, alongside volumes from Sakhalin II, which is already oriented toward Asia.

The scale of the challenge for Russia would increase substantially, even if sanctions were lifted or diluted. The full expansion of Arctic LNG-2 would add up to 27 bcma of liquefaction capacity, doubling total LNG export volumes from the Arctic region. Europe will not be able to absorb it, as REPowerEU legally bans new Russian gas purchases and terminates existing deals by 2027, leaving Russia without access to the European market.

Asia is the only region capable of absorbing these additional volumes, driving LNG demand growth, with limited domestic gas reserves or pipelines, and tolerance for spot-market pricing. All redirected volumes would flood Asia, intensifying competition, lowering prices, and eroding Russia's LNG revenues.

However, LNG expansion is constrained by structural and logistical bottlenecks. Yamal LNG and Arctic LNG-2 are Arctic-based and rely on ARC-7 ice-class LNG carriers for year-round operations. Russia's ARC-7 fleet is limited, while most additional vessels are owned, financed, insured, or certified by entities in sanctioning jurisdictions, restricting operational flexibility.

Arctic LNG-2 currently relies on two ARC-7 class vessels, both of which are sanctioned. CREA data shows that the remaining fleet serving the project consists of lower-class vessels, capable of transporting cargoes only during the short ice-free period from June to November. Yamal LNG has continued exports using 14 Western-owned and insured ARC-7 vessels, but this leaves operations highly exposed to sanctions enforcement and potential policy tightening.

Simultaneously, EU sanctions prohibit EU entities and vessels from buying, importing, or transferring Russian LNG — including onward transfers to third countries. This effectively cuts off critical logistical, financial, and legal support for Russian LNG exports, including shipments that could otherwise be redirected to Asia.

Overall, these factors indicate that even if sanctions are circumvented, Russia's LNG exports from Yamal, Arctic LNG-2, Portovaya, and Cryogas-Vysotsk would face increasing difficulty securing Asian buyers. The limited fleet of ARC-7 class vessels gives sanctioning countries critical leverage. It is also essential that European vessels are not sold to companies connected to Russian LNG, preserving this leverage.

Along with structural shipping constraints and EU sanctions, which prohibit EU entities and vessels from buying, importing, or transferring Russian LNG in line with the gas phase-out timeline, these factors effectively restrict Russia’s ability to scale or reliably redirect exports, even as market pressures push volumes toward Asia.

Russia’s pipeline pivot falls short

Russia’s ability to reroute pipeline gas exports to Asia is structurally limited by infrastructure constraints and long lead times. The only large-scale operational connection to China, the Power of Siberia I, delivered close to 39 bcm in the fourth year and is operating at or near full capacity, leaving little scope for expanding exports without major new trunkline development.

Additional routes remain small-scale or speculative. A far Eastern pipeline from Sakhalin II to China is expected to begin deliveries around 2027, but initial capacity will be only about 2 bcm per year, potentially rising toward 12 bcm over time. This is strategically relevant but insufficient to absorb volumes displaced from Europe.

Meanwhile, the proposed Power of Siberia II pipeline — intended to link West Siberian fields to China via Mongolia with a notional capacity of 50 bcm — remains uncommitted: no investment decision, no binding supply contract, no agreed pricing, and no construction timeline. Even under optimistic assumptions, it would not deliver meaningful volumes before the early-to-mid 2030s.

Other alternatives remain constrained. Exports to Central Asia have increased by 20% but remained modest at 12 bcm and are largely absorbed by domestic demand in Uzbekistan and Kazakhstan, both of which face structural supply shortage. Both these countries have shown limited willingness to expand transit capacity beyond existing infrastructure — requiring significant modernisation investments, particularly in Kazakhstan — prioritising energy security over facilitating Russia's reorientation.

Turkiye, via TurkStream, is Russia’s only major remaining pipeline outlet into the broader European gas system, but Turkish demand is finite at 60 bcm, re-export capacity is constrained by downstream infrastructure and regulation, and ‘gas hub’ proposals do not create new physical export capacity. As such, Turkiye cannot replace the loss of the EU market.

The redirection of Russian pipeline gas exports from Europe to Asia is significantly limited by infrastructure, capacity, and extended lead times. Current pipelines operate at or near maximum capacity, and proposed expansions are either years from completion or remain uncertain. Consequently, it is improbable that the loss of European demand can be offset in the short or medium term.

Russia’s coal dilemma: Steady export volumes are unable to address sectoral losses

To accurately gauge the performance of the Russian coal sector, it is necessary to separate export trends from internal industry turmoil. While there is a sustained global market for Russian coal, it remains limited to a small group of countries. Sanctions on coal companies have led to deeper price discounts compared to coal from other regions, while the state has offset sectoral losses by absorbing them within the federal budget.

In the fourth year, Russian coal export volumes rose 8% year-on-year, which was directly proportional to a similar 7% year-on-year increase in export revenues. Russia’s reliance on a limited number of countries to purchase its coal exports constrained its ability to significantly increase global export volumes. Eighty four percent of Russian coal exports went to just four countries — China (36% of total), India (18%), Turkiye (17%), and South Korea (12%).

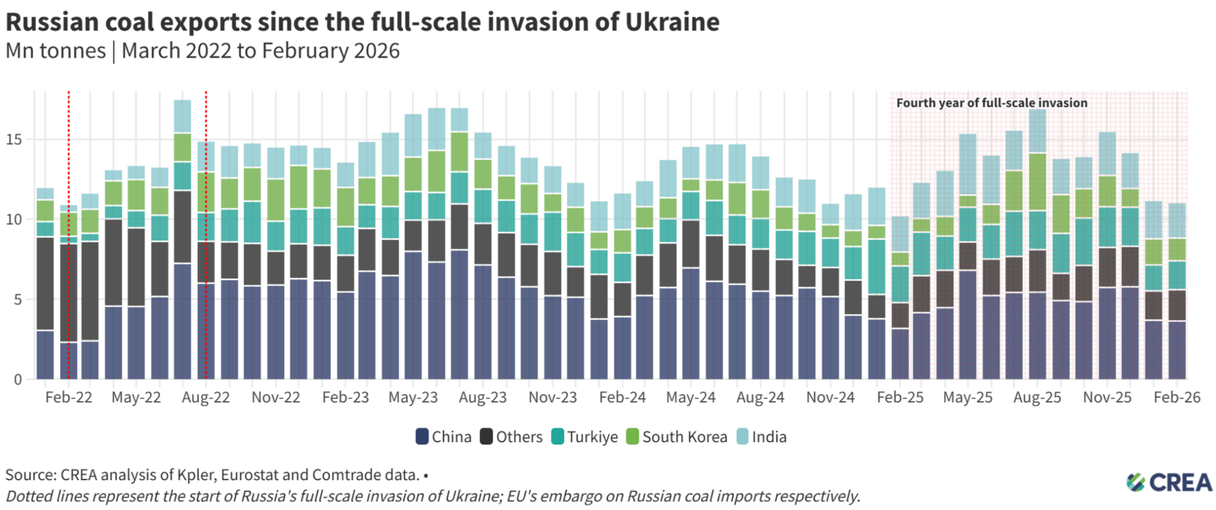

Figure 15 — Russian coal exports since full-scale invasion, March 2022-February 2026

The biggest changes in flows of Russian coal were reflected in India's imports, which rose 25% year-on-year in the most recent year of the full-scale invasion. India's imports of Russian coal in the most recent 12 months were over three times higher than the volumes imported the year before the full-scale invasion. Turkiye's imports have seen a 15% rise year-on-year and have reached almost double their pre-invasion levels. China's import volumes, meanwhile, saw a modest 4% year-on-year drop, but still remain 25% higher than pre-invasion levels.

South Korea, an outward ally of Ukraine, maintained a steady level of imports from Russia in the fourth year of the invasion. While Korea's volumes were only marginally higher than pre-invasion levels, their imports rose 41% year-on-year.

Alarmingly, while South Korea's total coal imports fell 17% in 2025 compared to 2021, Russia's share of South Korea's imports rose to 18.6%, up from 16.9% in 2021. This increased dependence contradicts the South Korean government's 2025 prioritisation of improving the nation's energy security amid geopolitical tensions.

Crucially, UK-insured vessels play a major role in transporting Russia's seaborne coal exports. A CREA investigation highlighted that, in 2025, UK companies legally insured 60% (EUR 15 bn) of Russia's coal exports. A majority of these exports went to China, India, Turkiye, South Korea, and Taiwan, while major UK Protection & Indemnity (P&I) clubs such as the West of England Shipowners and the London P&I Club provided most of the coverage. The UK legally enables its world-leading maritime insurance companies to facilitate the vast majority of Russia's seaborne coal exports, which must be prohibited immediately.

Sanctions bite as Russian coal sector struggles for survival

Analysis by the International Energy Agency (IEA), has shown that before Russia's full-scale invasion of Ukraine in 2022, Russian coal prices from Baltic and Black Sea ports closely tracked European ARA (Amsterdam, Rotterdam, and Antwerp) benchmark prices. Sanctions, which also included an embargo on Russian coal imports into the EU, forced a significant discount on prices to reflect the realities of shrinking markets. High railroad tariffs and limited transport capacity to eastern markets have further constrained export earnings and raised mining operational costs.

In fact, 80% of companies that export coal from Russia are now under sanctions. The exposure to sanctions risk from engaging with these buyers has led to further discounts.

IEA estimates suggest that these discounts have led to EUR 2.7 bn in projected revenue losses in 2025. The government itself has had to publicly acknowledge the sector's struggles, with as many as 23 Russian coal companies reported to have shuttered operations in the last year.

To counteract these losses, the government has offered significant export subsidies to coal producers, with certain grades receiving full export duty exemptions. Most of these losses are likely to be absorbed by the Russian budget — an outcome favourable for sanctioning countries and further reducing the Kremlin's finances for the full-scale invasion.

Policy recommendations

Tackle loopholes, circumventions and gaps in sanctions

Close the refining loophole: Nations that have not yet banned the importation of oil products made from Russian crude must do so immediately to choke Russia's crude oil export revenues. In 2025, two regions, the EU and the UK, declared that they would ban this trade. The UK's intentions, though, haven't translated into action, with no clarity on the ban's implementation date or guidance on the forthcoming legislation. The EU's ban came into force on 21 January 2026.

While the EU's ban is commendable, it must close the gaps in the legislation that allow Russian hydrocarbon molecules to continue to enter the bloc.

One such gap concerns Article 3ma of Council Regulation 833/2014. The measure assumes that countries defined as net crude oil exporters have not used Russian crude oil to produce products exported to the EU. This definition of a 'net crude oil exporter', however, relies on outdated IEA data. Since IEA data is published with a one-year delay, it does not reflect emerging exporters that started shipping refined products in 2024.

Relying solely on last year's data overlooks real shifts in export patterns. This leaves gaps in monitoring and policy enforcement, and countries or companies that became active exporters in 2024 would not have been identified, leaving their flows untracked for months.

A simpler ban on imports of oil products or petrochemicals from any refinery that has received a single shipment of Russian crude or refined products in the previous six months would help close regulatory gaps and prevent the EU from importing hydrocarbons partially derived from Russian oil.

End Hungary and Slovakia's unnecessary reliance on Russian crude oil: The finalised Regulation (EU) 2026/261 should be voted on through a qualified voting majority to ban Russian oil imports no later than the end of 2027. The EU has stated its intention to table a legislative proposal at the beginning of 2026.

As outlined in Article 10 of the Regulation (EU) 2026/261, each Member State that receives oil from Russia, now only Hungary and Slovakia, must submit a national diversification plan outlining how they will discontinue imports from Russia by the end of 2027. CREA recommends that the detailed national diversification plans that are submitted to the EU Commission should be published to inform businesses, NGOs, and researchers. The EU should remove Article 10.5 from Regulation (EU) 2026/261, which creates a loophole for Member States that desire to continue buying Russian crude oil, allowing them to offer excuses for not ending imports by the end of 2027. Member States have been given more than five years' notice by the EU that they are required to end imports of Russian fossil fuels; any backsliding must be disincentivised through heavy fines and other repercussions.

Prevent the re-exportation of Russian refined fuels from entering sanctioning countries: The UK, EU, and USA must ban imports of oil products or petrochemicals from ports that have received a shipment of Russian refined fuels in the last six months to eliminate any risk of re-export, blending, illegal relabelling, or further processing of Russian hydrocarbons that benefit the Kremlin's war chest.

The EU investigative body OLAF (European Anti-Fraud Office) must conduct an investigation into the ports, such as those in Turkiye and Georgia, as well as the associated companies involved, to gather evidence confirming whether the ports have illegally re-exported Russian oil products to sanctioning countries. If sufficient evidence of sanctions violations is obtained, significant fines must be issued, and severe legal repercussions be imposed to discourage other operators from engaging in this illegal trade. Sanctioning jurisdictions should also impose sanctions on ports or re-export terminals that have violated measures.

The EU, UK, and US should also ban the import of oil products or petrochemicals from ports with a feasible connection to a pipeline or railway supplying a refinery that is operating on or receiving Russian oil.

Tackle the ‘shadow’ fleet to cut Russian fossil fuel revenues

Require flag certification for vessels transiting EU waters: While the EU’s current Vessel Monitoring Directive (2022/59/EC) requires vessels transiting EU waters to show proof of insurance, this should be expanded to include proof of flag certification. While countries in the Nordic-Baltic 8++ group have agreed to produce joint action on countering ‘shadow’ fleet actions — including sharing information on insurance records, flagging history and vessel activity in high-risk zones — this needs to be expanded to all other Member States in the bloc.

EU coastal maritime enforcement authorities, the UK Maritime and Coastguard Agency, and the Royal Navy must detain ‘shadow’ fleet vessels operating under false flags: Vessels that transit EU or UK coastal waters with a false flag violate Article 94 of the United Nations Convention on the Law of the Sea (UNCLOS), which mandates that the flag state must exercise effective jurisdiction and control over administrative, technical, and safety matters. When a ship is false flagged, no state exercises responsibility or has control over its actions — effectively breaching Article 94.

Coastal states must therefore act boldly and detain Russian ‘shadow’ fleet vessels that pose huge environmental and security threats to European and UK coastlines and provide a financial lifeline to the Kremlin’s war-chest. Detaining false flagged ‘shadow’ vessels would disrupt Russian oil export logistics, increase costs and create delays — ultimately reducing the volume and reliability of its oil trade.

Establish strict Know Your Customer (KYC) standards for the sales of tankers from EU companies: All EU-connected vessels should be subject to mandatory, risk-based due diligence, including the identification of counterparties and ultimate beneficial owners, the assessment of jurisdictional and structural risks, and consideration of foreseeable end use. EU sellers must refrain from transactions that present a high and unmitigated risk of circumventing sanctions. Key intermediaries — shipbrokers, registries, insurers, classification societies, and corporate service providers — should conduct proportionate Anti-Money Laundering (AML) and sanctions compliance checks. Compliance from tanker sellers in EU Member States should be assessed under a ‘knew or should have known’ standard, with documented good-faith assessments providing a safe harbour. Commission guidance should clarify risk indicators, typologies, and mitigation measures.

Cut off all G7+ services that facilitate the transport of Russian hydrocarbons globally

Implement a ban on the provision of G7+ maritime services used to transport Russian fossil fuels: Russia is still very reliant on Western-owned or insured vessels to transport its economic lifeline, fossil fuels. Although the EU has proposed the introduction of a ban on maritime services used to transport Russian crude oil in its 20th sanctions package, which they hope will be enacted by G7 partners too, this measure would not prohibit Western companies from providing services that facilitate exports worth billions of euros of oil products, coal, or LNG of Russian origin every month. G7+ owned or insured tankers transport the majority of Russian oil products, its second-largest fossil fuel export earner, which should be prohibited to create logistical challenges for Russian exporters, raise operational costs, and cut export earnings.

The UK insures the majority of Russia's coal exports, having risen to cover 60% of Moscow's total seaborne flows in 2025. For LNG, 95% of Russian LNG exports in 2025 were carried on Western-owned or insured carriers. Sanctioning countries must finally ban maritime services, ending the facilitation of the Kremlin's fossil fuel exports that has legally persisted for more than four years.

CREA

Methodology

The data used in this analysis is based on CREA's Russia Fossil Shipment Tracker [methodology](#).

Because of the timing of this publication, the analysis forecasts data for February 2026. To do this, we aggregated daily volumes from January 2021 through January 2026 into a training dataset of monthly averages (tonnes per day) for each destination country and commodity group: coal, crude oil, oil products, natural gas (pipeline), and LNG. This time period covers all available data from the Russia Fossil Shipment Tracker at the time of writing.

For each country-commodity combination (hereafter referred to as 'routes'), we first identified whether the trade flow was active in the recent past. If a route showed no shipments in the final 12 months of the training period, we treated it as inactive. For active routes, we used exponential smoothing state space (ETS) time-series forecasts with automated model selection. For inactive routes, the prediction was a flat zero. We modelled each route independently. Our model relied entirely on historical shipment data and did not include sanctions, infrastructure constraints, policy changes, or other external drivers as exogenous variables.

Impact of sanctions on the volume of oil transported

This analysis compares changes in oil transport volumes across three tanker cohorts: OFAC-sanctioned vessels, other sanctioned vessels ('Others'), and non-sanctioned active tankers. Vessels ever designated by OFAC are assigned to the OFAC group using their first OFAC designation date, while remaining sanctioned vessels are assigned to the 'Others' group based on their first non-OFAC designation.

We grouped non-OFAC sanctions together because they rarely occur in isolation and are typically applied to the same vessels, making separate analysis impractical. For non-sanctioned tankers, we assign a randomly selected "pseudo-treatment" month based on when real sanctions occurred on other vessels. This allows us to compare changes before and after a similar reference point in time.

Using CREA analysis of Kpler trade data, monthly oil volumes are normalised per vessel and compared between the 12 months before the treatment month and the period after (until the end of January 2026), with results reported as average per-vessel changes by cohort. Because cohort sizes differ, these estimates reflect impacts on individual tankers rather than changes in total oil flows.

About CREA

The Centre for Research on Energy and Clean Air (CREA) is an independent research organisation focused on revealing the trends, causes, health impacts, and solutions to air pollution. CREA uses scientific data, research, and evidence to support the efforts of governments, companies, and campaigning organisations worldwide to move towards clean energy and clean air, believing that effective research and communication are the keys to successful policies, investment decisions, and advocacy efforts. CREA was founded in Helsinki and has staff in several Asian and European countries.