KSE | Institute

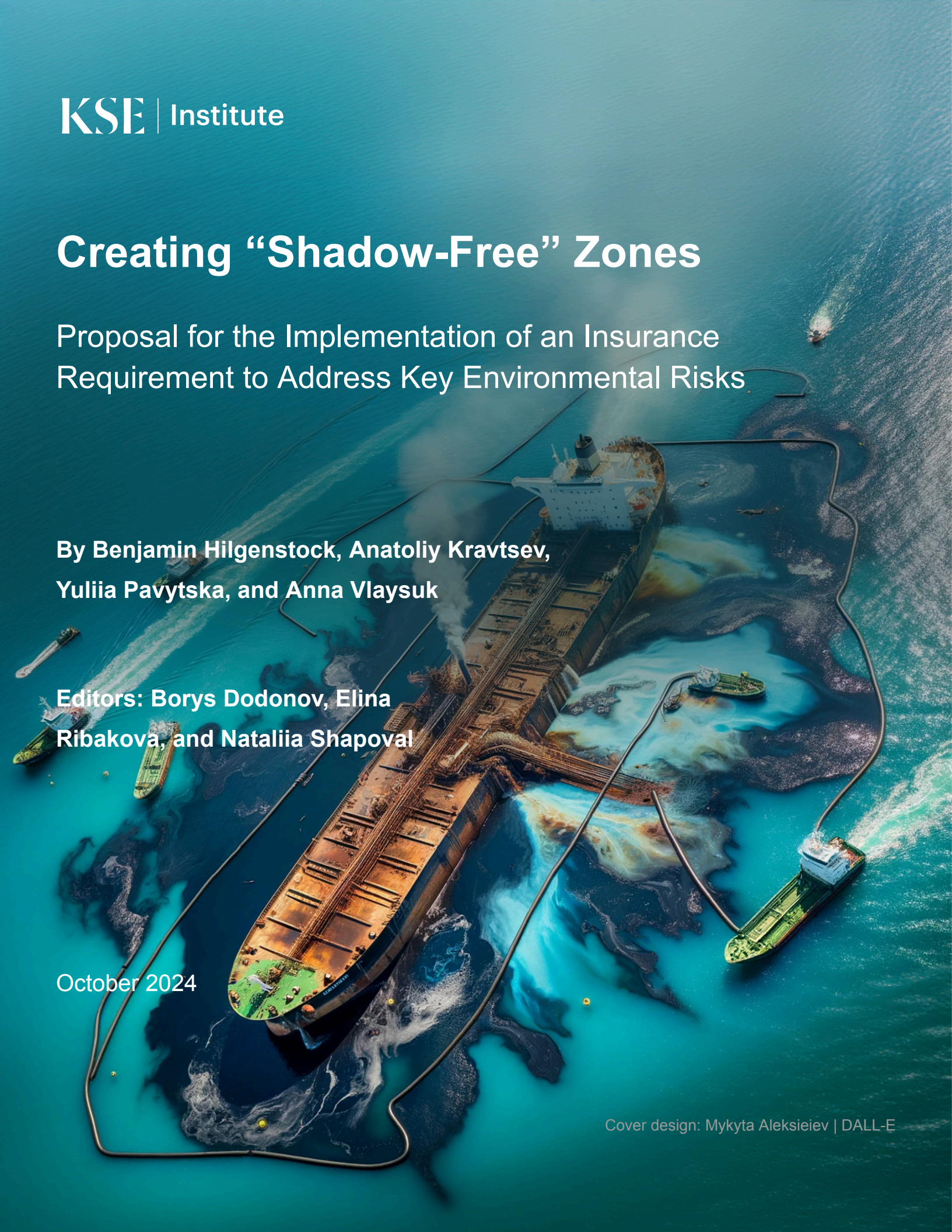
# Creating “Shadow-Free” Zones

## Proposal for the Implementation of an Insurance Requirement to Address Key Environmental Risks

**By Benjamin Hilgenstock, Anatoliy Kravtsev, Yuliia Pavytska, and Anna Vlaysuk**

**Editors: Borys Dodonov, Elina Ribakova, and Nataliia Shapoval**

October 2024



Cover design: Mykyta Aleksieiev | DALL-E

# Acknowledgments

The KSE Institute Sanctions Team also includes Olena Bilousova, Oleksii Hrybanovskii, Vira Ivanchuk, Dmytro Pokryshka, Roman Popov, Elina Ribakova, Lucas Risinger, Pavlo Shkurenko, and Matviy Talalaievskyi.

In preparing this report, we have benefitted from discussions with Craig Kennedy at Harvard's Davis Center and from his recent Brookings working paper **"Making the Baltic a 'Shadow-Free' Zone"**.

We thank Anders Aslund, Daniel Berkowitz, Ed Chow, Eddie Fishman, Daniel Fried, Steven Hellman, Michael McFaul, Benjamin Moll, Richard Morningstar, Jacob Nell, Craig Pask, Lukasz Rachel, Benjamin Schmitt, Vladyslav Vlasiuk, and other members of the *International Working Group on Russian Sanctions* for their contributions to the discussion about energy sanctions against Russia, including the issue of the shadow fleet.

# Table of Contents

**Executive Summary** ..... **2**
**Environmental Risks from the Shadow Fleet** ..... **5**
What Is the Russian Shadow Fleet ..... 5
The Shadow Fleet's Weak Spot: Oil Spill Insurance ..... 6
How the Russian Shadow Fleet Threatens the Environment ..... 9
A Disaster Waiting to Happen on Europe's Doorstep ..... 11
**Creating "Shadow-Free" Zones** ..... **15**
Oil Spill Insurance Disclosure Requirement ..... 15
Mechanisms to Enforce Insurance Requirement ..... 17
Leverage in Different Coalition Jurisdictions ..... 21
Advantages of the Proposed Strategy ..... 22
**Addressing Concerns About Oil Markets** ..... **24**
Price Cap-Related Measures Have Not Increased Prices ..... 24
Russia Cannot Afford to Cut Oil Supplies to the Market ..... 27
Sufficient Mainstream Fleet Capacity Is Available ..... 28

# Executive Summary

This publication follows KSE Institute's recent flagship reports **"Assessing the Shadow Fleet"** and **"The Core of Russia's Shadow Fleet"**, in which we analyzed the build up of the shadow fleet, its current size and characteristics, and prospects for its further expansion. We also documented the effectiveness of sanctions on individual tankers and identified ships consistently used by Russia's as targets for future designations.

In this report we focus on a critical development related to the rise of the shadow fleet: the environmental risk stemming from aging and insufficiently insured vessels, including in European waters. This issue has received serious attention in recent months – but, so far, the challenge has not been addressed in a systematic way. We aim to contribute to the conversation by discussing the origins of the shadow fleet's environmental threat and proposing a mechanism to impose and enforce a requirement for adequate oil spill insurance. We argue that coastal states need to assert their authority to create "shadow-free zones" in key areas.

**Russia's shadow fleet represents an urgent and significant risk to the environment:**

1. **Russia has invested heavily into the build-up of its shadow fleet.** The shadow fleet allows Russia to evade the G7+ oil price cap and realize additional export earnings to finance its war of aggression. While the investment has been sizable – estimated at $10 billion since early 2022 – the strategy has significantly reduced the sanctions regime's leverage. In recent months, close to 70% of Russian seaborne oil exports were transported by shadow tankers and, therefore, do not fall under the price cap. This includes almost 90% of crude oil, which has traded above $60/barrel since mid-2023.
2. **The shadow fleet consists of aging and inadequately insured ships.** Russia largely built its shadow fleet by purchasing older tankers on the second-hand market and stripping them of services links to price cap coalition countries. Setting up alternative oil spill insurance (i.e., "P&I") coverage has turned out to be extremely challenging. While there is little transparency with regard to the shadow fleet's coverage, it is likely inadequate as insurance companies are not sufficiently capitalized and, in some cases, under sanctions, meaning that they are unlikely to pay out in case of an incident.
3. **An environmental disaster is waiting to happen in European waters.** Russia's continued reliance on production and export infrastructure geared towards its traditional markets in Europe means that large quantities of oil pass through European waters every day. In the first half of 2024, 72% of Russian seaborne oil was shipped from ports in the Baltic and Black Seas, 58% of which were moved on shadow tankers. This means more than 75 million barrels every month on ships that are on average 18 years old, insufficiently maintained, and likely inadequately insured. Loaded shadow tankers of this sort pass through European waters several times every day, including an average 2.9 going via the Danish Straits and English Channel, 2.8 via the Strait of Gibraltar, and 2.2 via the Aegean Sea.
4. **Incidents already occurred and a major disaster is a question of time.** There have been several instances of shadow tankers being involved in collisions or coming close to running aground in recent months, including two incidents in the Danish Straits. The problem is not limited to the Russian shadow fleet either, but also extends to ships carrying Iranian or Venezuelan oil. Large oil spills have so far been avoided but a major disaster is waiting to happen and clean-up costs would reach billions.

**We propose the following strategy to address shadow fleet-related environmental risks:**

1. **Require disclosure of oil spill insurance coverage from all vessels.** Coalition governments should demand documentation from all vessels passing through or near their waters to ensure transparency regarding insurance arrangements. In this context, it is crucial to reiterate what constitutes "adequate" coverage in line with the 1992 International Convention on Civil Liability for Oil Pollution Damage (CLC) as well as International Maritime Organization (IMO) guidelines. Specifically, disclosures should include audited financial statements of the insurer and a credit rating by a reputable international rating agency.

   This information would allow coalition authorities to establish if a vessel's protection and indemnity (P&I) insurance can be relied upon to pay out in the case of an incident. Such a disclosure requirement does not impose an undue burden; rather, it ensures a level playing field for all players in the shipping industry. All tankers covered by the International Group already comply, and shadow vessels should have similar information readily available as it is needed for annual submission to flag state authorities.

2. **Establish a multi-tiered mechanism to enforce insurance requirements.** We propose to utilize a variety of instruments to ensure compliance with the coverage and disclosure requirements and believe that the environmental threat stemming from the shadow fleet can be effectively addressed this way:

   i. **Diplomatic outreach to entities currently tasked with enforcement:** Coalition authorities should exert pressure on key flag state authorities to play the role that is assigned to them in the existing framework – i.e., to diligently verify the adequacy of oil spill insurance when providing or renewing registrations. This approach should also extend to ship classification societies, which establish and maintain technical standards. While Russia will attempt to evade constraints by relying on even-weaker jurisdictions, this will increase the costs of shadow fleet operations.

   ii. **Commercial incentives for participants to ensure compliance:** Anyone involved in the operation of tankers that fail to comply with international maritime law and IMO regulations, including with regard to the adequacy of oil spill insurance, – flag states, certification societies, ship owners and managers, charterers – should be held liable for damages if they played any role in the set up and/or verification of such insurance arrangements. This could fundamentally change the incentive structure for those unlikely to respond to diplomatic pressure. Legal liability should also be extended to non-compliance with the proposed insurance requirement.

   iii. **Designation of shadow fleet vessels without adequate insurance:** The most potent mechanism consists of the ability to effectively remove vessels from commercial operations through their designation. Any tanker that fails to comply with the aforementioned P&I insurance disclosure requirement or whose oil spill insurance is determined to not meet the IMO's standards for adequacy will be allowed to continue its voyage. However, it will subsequently be designated by the respective competent authorities of coalition members. It is critical that the credibility of the designation strategy is maintained by taking enforcement action against any entities interacting with a listed vessel or the cargo it carries, including buyers and banks.

   iv. **Interdiction of specific vessels in extraordinary circumstances:** In certain situations where individual vessels pose a clear and present danger to the environment or the safety of maritime traffic, coalition countries should reserve the right to physically stop tankers. This would not be done to address the shadow fleet in a broader sense but to avoid disaster in specific situations.

**The proposed strategy will not remove Russian oil from the market and drive up prices:**

1. **Credible threat will not require a large number of actual designations.** For anyone involved in shadow fleet operations, having a vessel removed from commercial operations via sanctions is a major risk. Money spent on the acquisition of tankers as well as on reflagging, setting up opaque ownership and management structures, and securing alternative insurance arrangements would immediately turn into sunk costs. Operators therefore have a strong incentive to avoid such consequences and ultimately comply with the insurance requirement proposed in this report. Importantly, they can do so easily as an established and well-functioning system to provide adequate oil spill liability insurance is in place. Outside of the enforcement mechanism proposed here, coalition countries are free to continue removing shadow fleet tankers from operations via designations to step up pressure on Russia.
2. **Vessel designations have not impacted oil and gasoline prices.** Since the start of the shadow fleet designation campaign in the fall of 2023, we do not find the listing of tankers to be systematically linked with higher prices. The price caps' taking effect and official communications such as compliance and enforcement alerts as well as industry guidance were also not associated with significant price changes. We believe that reducing the price that Russia receives may actually lower global oil prices as Russia would be pressed to increase volumes in order to maintain stable export earnings. Rather, it has been oil production decisions by OPEC+ that have largely driven changing price dynamics.
3. **Stricter enforcement is unlikely to affect Russian export volumes.** Fundamentally, Russia cannot afford to reduce its oil supplies to the global market – in particular in a situation where export prices fall – as it remains heavily dependent on sales of oil for both export earnings and budget revenues. Not only would it, thus, be extremely painful for Russia to cut export volumes as a retaliatory measure, the commercial incentive to continue to supply would be very much intact. This is due to the fact that production costs for Russian crude oil are quite low – estimated at $10-15/barrel on average.

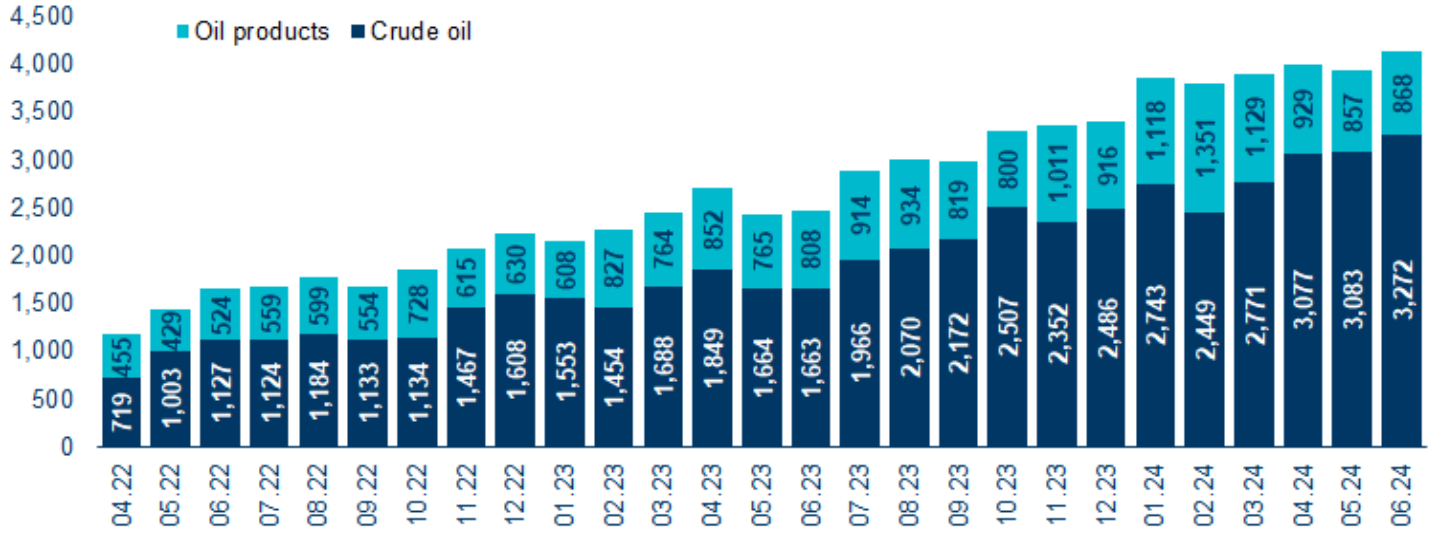
Considering the imminent and significant threat that Russia's shadow fleet poses to the environment, we urge coalition countries to quickly take action and implement a scheme that ensures all tankers passing through European waters carry adequate oil spill insurance that will pay out in case of an incident.

# Environmental Risks from the Shadow Fleet

## What Is the Russian Shadow Fleet

**Russia has invested heavily into the creation of a shadow fleet of tankers since 2022.** The development of this shadow fleet can only be understood in the context of international energy sanctions imposed after the start of Russia's full-scale invasion of Ukraine. In addition to banning the import of Russian oil, Ukraine's allies opted for an innovative approach to simultaneously achieve two objectives: deprive the aggressor of critical export earnings and ensure stability in the global oil market by maintaining supplies from Russia. This approach, the G7+ oil price cap, posits that Russia can only rely on certain maritime services – including vessel ownership, management, registration, and insurance – from price cap coalition countries if the cargo is sold at or below a certain threshold. To be able to evade these restrictions and sell its oil at higher prices, Russia launched an extensive and costly effort to build up alternative export capacities – the "shadow fleet". We classify a vessel as part of the shadow fleet if it does not have any service relationships with G7+ jurisdictions – comprising the G7, the EU, and Australia – and transports Russian oil.[1] Russia's response to oil-related sanctions is not novel as Iran and Venezuela have reacted in similar fashion to restrictions on their exports. In a recent report, KSE identified roughly 1,000 vessels as belonging to the global shadow fleet.[2]

**Figure 1. Volume of Russian Shadow Fleet Oil Shipments, in thousand barrels/day**




*Source: Equasis, International Group of P&I Clubs, Kpler, KSE Institute*

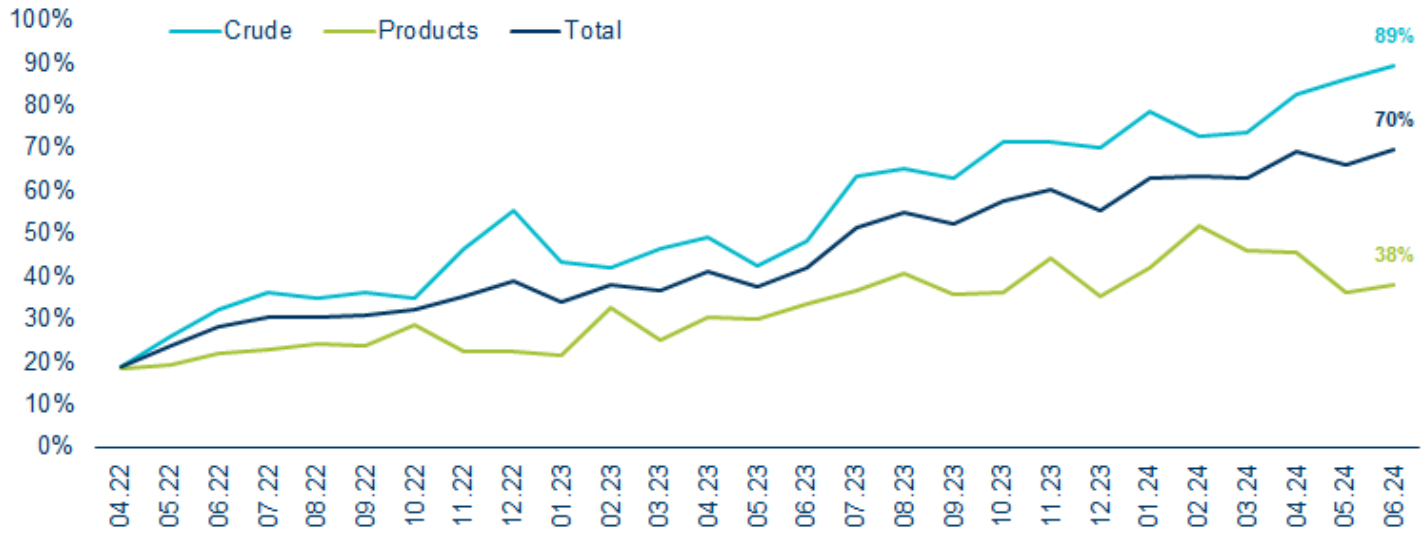
**Several hundred shadow fleet tankers have transported Russian oil in recent months.** The exact size of the Russian shadow fleet has been a topic of extensive debate. In a recent report, **"The Core of Russia's Shadow Fleet"**, KSE Institute documented that more than 300 tankers had carried Russian crude oil in 2023 and the first half of 2024, while more than 430 tankers had carried Russian oil products over this period of time. However, not all of them did so regularly. KSE Institute identified 45 crude oil and 41 product tankers that were consistently part of the shadow fleet in 2023 and the first half of 2024 – i.e, a "core" shadow fleet. Another KSE Institute publication, **"Assessing Russia's Shadow Fleet"**, investigated how Russia built its shadow fleet and

[1] While not officially members of the price cap coalition, others (Norway, Switzerland) have mirrored the measures.
[2] See "Assessing Russia's Shadow Fleet".

found that it did so largely by acquiring older vessels on the secondary market and stripping them of all links with coalition jurisdictions. Russia has spent around $10 billion on the shadow fleet over the past two years. KSE Institute tracks the activities of the Russian shadow fleet in its monthly **"Russian Oil Tracker"**.

**The shadow fleet enables Russia to circumvent the G7+ oil price cap.** While the investment has been considerable, the strategy has significantly reduced the sanctions regime's leverage. Over the past two years, the volume of Russian oil transported by shadow tankers – i.e., vessels not owned, managed, or insured in the G7+ – has risen consistently, reaching 4.1 million barrels per day in June 2024. At the time of the crude oil price cap's taking effect in December 2022, it was only 2.2 million barrels per day (see Figure 1).[3] The increase in these volumes corresponds to a larger share of total seaborne exports transported with shadow tankers. As of June 2024, 70% of seaborne exports of Russian oil were conducted on shadow fleet vessels – including 89% of crude oil and 38% of oil product shipments (see Figure 2). This means that, at a time of prices for crude oil and discounted oil products rising significantly above their respective thresholds, the price cap does not apply to a large portion of exports – and Russia has been able to realize additional export earnings.[4] The build-up of the shadow fleet, thus, threatens the leverage of the oil sanctions regime in a fundamental way.[5]

**Figure 2. Share of Russian Shadow Fleet Oil Shipments, in %**




*Source: Equasis, International Group of P&I Clubs, Kpler, KSE Institute*

## The Shadow Fleet's Weak Spot: Oil Spill Insurance

**Arranging adequate oil spill insurance outside of the G7+ is a major challenge.** Key to the "creation" of a shadow tankers is the severing of all links with price cap coalition countries. An area where this has proven to be difficult is oil spill insurance, also known as protection and indemnity (P&I) insurance, which is a mandatory

[3] We use June 2024 as the last datapoint for this report's analysis for two reasons: to allow for all voyages, including those that may take several weeks, to be concluded and fully reflected in the data; and to allow for any revisions to the shipment information, which are frequent when it comes to the shadow trade with Russian oil. Preliminary numbers for July-August indicate the fundamental dynamics with regard to the shadow fleet have not changed in recent months.
[4] For a monthly analysis of the Russian economy, including energy revenues, see the KSE Institute Russia Charbook.
[5] Sanctions on individual tankers, which the US, EU, and UK have imposed in recent months, have not changed this situation as they are too limited in nature and Russia has been able to replace the "lost" capacities. For more details on the sanctioned vessels and their replacement, see "The Core of Russia's Shadow Fleet".

requirement under international maritime law.[6] Without it, vessels cannot renew their annual flag registrations and conduct normal operations. Setting up adequate P&I insurance on an industry-wide basis is a challenge as the sums involved are too large for commercial insurance and reinsurance markets. Consequently, ship owners have had to resort to a form of "mutual" insurance, whereby they pool resources and assume collective liability through a network of mutual insurance societies known as the International Group of P&I Clubs (or "IG"). The IG can provide reliable oil spill insurance on a low-cost basis thanks to very large economies of scale and supplemental reinsurance in the commercial market. IG policies are known for high levels of transparency, enjoy a strong track record of payouts, and routinely demonstrate adequate levels of capitalization.

**Russia had to resort to domestic arrangements for shadow fleet insurance.** The creation of the G7+ oil price cap made it necessary for Russia to find alternative insurance for its growing shadow fleet. After attempts to form a multilateral insurance structure similar to the IG with "friendly states" (presumably, China and India) went nowhere[7] – not a surprise as Russia was effectively asking them to assume much greater risks and costs for inferior insurance so that it could sell them oil at a higher price –, authorities had to rely on domestic resources. Specifically, Ingosstrakh, a major state-owned insurer, issued policies for Sovcomflot tankers when the company was sanctioned and its vessels stripped of their IG coverage. Media reporting indicates that some non-Sovcomflot vessels are now also insured by Ingosstrakh.[8] These P&I policies were/are reinsured by the Russian National Reinsurance Company (RNRC), a fully-owned subsidiary of the country's central bank (CBR). At least three other Russian companies appear to be involved in providing P&I insurance to the shadow fleet: AlfaStrakhovanie, VSK Insurance, and Sogaz Insurance – all also backed/reinsured by RNRC.[9] The three companies recently received approval by the Indian government to provide maritime insurance.

**Oil spill insurance of Russian shadow fleet tankers is likely insufficient.** There remain many questions around the quality, reliability, and extent of the aforementioned alternative P&I insurance arrangements.[10] *First*, there is very little information on the actual insurance coverage carried by shadow tankers and its specific terms and conditions; this information is available to flag states but not to other parties, including coastal states. *Second*, even if such disclosures existed, it would be difficult to assess the coverage's adequacy due to a lack of transparency with regard to the insurers' financial statements. *Third,* the Russian insurance sector, which is relatively small in comparison to other countries, lacks a favorable, established track record of payouts on spill-liability claims. *Fourth*, it is unclear to what extent such payments could even be made due to sanctions imposed on some of the involved entities, including Ingosstrakh (by the UK) and RNRC.[11] *Fifth*, Ingosstrakh's own policies appear to include an exclusion clause, which would invalidate the insurance of any tanker operating in violation of international sanctions.[12] Altogether, we conclude that the shadow fleet's P&I insurance is unlikely to fulfill International Maritime Organization's (IMO) standards for adequate coverage and cannot be relied upon to pay out in the event of an oil spill for this and other reasons outlined above.[13]

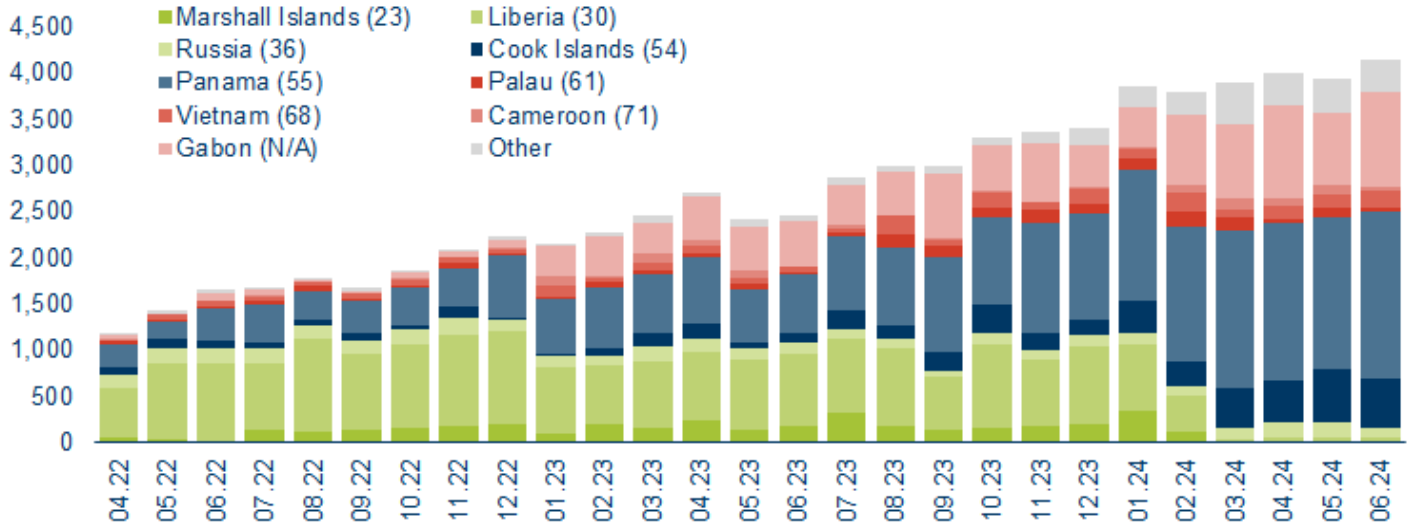
---

[6] See, specifically, the 1992 International Convention on Civil Liability for Oil Pollution Damage (CLC) here.
[7] See, for instance, interviews by Russian Energy Minister Shulginov on September 5, 2022, here, and Russian Deputy Prime Minister Novak on December 22, 2022, here.
[8] See *Russian 'dark fleet' lacks disaster insurance, leaks suggest*, Financial Times, March 15, 2024.
[9] See here.
[10] See *For almost a year, Russia's dark fleet has had free access to Denmark*, Danwatch, November 15, 2023.
[11] The UK imposed sanctions on Ingosstrakh on June 13, 2024 (see here). RNRC is sanctioned by, among others, the US (since June 12, 2024; see here), EU (since February 25, 2023; see here), and UK (since November 11, 2023; see here).
[12] See *Russian 'dark fleet' lacks disaster insurance, leaks suggest*, Financial Times, March 15, 2024.
[13] See *Guidelines for accepting insurance companies, financial security providers and the International Group of Protection and Indemnity Associations (P & I Clubs)* as approved by the IMO's Legal Committee here.

**Negligent flag-state oversight is the weak link in the regulatory framework.** While the IMO serves as the agency through which regulations are set, it lacks enforcement authority. Ensuring compliance with the rules lies primarily with flag states, i.e., the countries that provide vessels with registration documentation. Nowadays, many ships fly so-called "flags of convenience" – flags arranged by for-profit businesses in various countries that provide registration services to vessels from around the world. They take on responsibility for certifying that vessels on their registry comply with international regulations, including structural surveys and oil spill insurance requirements. However, enforcement is not uniform across flag states and some are notorious for lax standards.[14] Herein lies the fundamental vulnerability of the shipping industry's regulatory framework.

To address this problem, the IMO has developed detailed diligence guidelines for flag states' assessment of the adequacy of oil spill insurance, including a review of three years of the insurer's audited financial statements and submission of a satisfactory credit rating from a reputable international rating agency.[15] The issuance of these guidelines has not solved the problem, however. In some cases, the reason likely boils down to willful negligence on the part of certain flag states as well as corruption. The build-up of Russia's shadow fleet has only exacerbated these challenges as the demand for non-IG P&I has grown and shadow fleet operators have reflagged vessels to even weaker jurisdictions, including, most notably, Gabon (see Figure 3).[16]

**Figure 3. Flag states of the Russian shadow fleet, in thousand barrels/day**




*Source: Equasis, Kpler, KSE Institute *numbers in legend display Paris MoU flag state ranking*

[14] For the Paris MoU's white, gray, and black lists of flag states, see here. The Paris MoU is an organization of 28 maritime administrations from Europe and North America, which aims to eliminate the operation of sub-standard ships through a harmonized system of port state control. Its assessment of flag states is based on the results of port state inspections.

[15] See *Guidelines for accepting insurance companies, financial security providers and the International Group of Protection and Indemnity Associations (P & I Clubs)* as approved by the IMO's Legal Committee here.

[16] Gabon had previously played no meaningful role as a flag state and is not even rated by the Paris MoU. Russian shadow tankers began being flagged in Gabon after the price cap's taking effect in December 2022 and its role grew significantly in early 2024 when shadow fleet operators moved away from Liberia's flag registry, which is administered by a company in the U.S. and, thus, subject to the price cap. See also *In a Cat-and-Mouse Game, Russian Oil Tankers Are Flying New Flags*, New York Times, October 3, 2024.

## How the Russian Shadow Fleet Threatens the Environment

**Inadequate insurance raises likelihood of and potential damage from spills.** The absence of proper P&I insurance directly increases risks around oil spills in several ways. It is not only that coastal communities could receive less eventual compensation in the event of an incident, but early disbursement of emergency funds that can limit the extent of a spill may not materialize in time or at all. In a similar way, funds may not be available for long-term clean up efforts, which can take years. Less obviously but no less relevant: Proper insurers – with real capital at stake – will make sure that covered vessels are adequately maintained, which reduces the risk of an incident happening in the first place. By contrast, unreliable insurers – those prepared to walk away from a claim or lacking the capital for a payout – have less incentive to ensure that vessels comply with best safety practices. Inadequate non-IG P&I insurance has been a major and persistent concern for the IMO for many years, but the issue has become even more pressing with the rise of Russia's shadow fleet.

**A major disaster involving the shadow fleet appears only a question of time.** There is an inherent tension between the interests of flag states, which are tasked with the enforcement of IMO P&I insurance requirements, and the coastal states most at risk from negligent oversight. The UN Convention on Law of the Sea (UNCLOS), which came into force in 1994, addresses this tension by providing certain limited rights to coastal states to safeguard their territorial waters from shipping that is in violation of international law and poses a pollution threat.[17] In recent years – partially in response to flag state negligence – coastal states have asserted their authority more robustly.[18] The weak link in the regulatory framework, together with the dramatically expanded role of shadow tankers in the Russian oil trade, means that a major environmental disaster is only a question of time.[19] In fact, several "close calls" have already occurred in recent months.[20]

**Several incidents involving the Russian shadow fleet have taken place in recent years.** In March 2024, a 15-year old shadow tanker, the ***Andromeda Star***, collided with an unnamed vessel near the northern tip of Jutland (Denmark).[21] Luckily, the tanker was heading towards Russia at the time and, thus, unloaded. On an outbound voyage, it would have carried up to 700,000 barrels of crude oil and the incident could have resulted in a major environmental disaster. The ship was/is owned and managed by a Seychelles-based company and did/does not carry spill insurance by the IG. Ten months earlier, in May 2023, another shadow fleet tanker loaded with 340,000 barrels of Russian oil products and coming from the port of Vysotsk, the ***Canis Power***, lost engine power while passing through the Danish Straits and almost ran aground.[22] At the time, the ship was 18 years old, anonymously owned, flagged in the Cook Islands – a gray-listed jurisdiction –, and without known

[17] See UNCLOS, Article 21: "The coastal State may adopt laws and regulations, in conformity with the provisions of this Convention and other rules of international law, relating to innocent passage through the territorial sea, in respect of all or any of the following: (...) (f) the preservation of the environment of the coastal State and the prevention, reduction and control of pollution thereof." See also Article 233: "However, if a foreign ship other than those referred to in section 10 has committed a violation of the laws and regulations referred to in article 42, paragraph 1(a) and (b), causing or threatening major damage to the marine environment of the straits, the States bordering the straits may take appropriate enforcement measures and if so shall respect mutatis mutandis the provisions of this section."

[18] For instance, in December 2022, Turkey required that tankers transiting its territorial waters must, as a condition of passage, provide direct confirmation from their P&I insurers that the vessel was adequately insured (see here).

[19] See, for instance, *There's a shadow fleet sneaking Russian oil around the world. It's an ecological disaster waiting to happen*, Joshua Keating, VOX, March 28, 2024.

[20] To make matters worse, shadow fleet tankers have also been found to routinely reject specialist pilots. See *Russia's 'dark fleet' rejects navigators for perilous Danish straits*, Financial Times, March 22, 2024. See also *Oil Spill Fears Mount as Russia Tankers Reject Key Danish Pilots*, Bloomberg, September 10, 2024.

[21] See *Shadow-Fleet Oil Tanker Damage in Collision Near Denmark*, Bloomberg, March 19, 2024.

[22] See *Measuring the Shadows*, Navigating Russia, August 23, 2023.

P&I insurance. The loss of engine power is a frequent issue of shadow fleet tankers and can lead to serious consequences, especially in narrow and shallow waters. For instance, the ***Hera 1*** experienced such issues while passing through the Dardanelles in May 2024. Similar incidents involved the ***Turba*** (in October 2023, off the coast of Indonesia) and the ***Destan*** (in August 2024 at or near Vadinar, India).[23]

**Figure 4. Shadow fleet-related incidents**




*Source: KSE Institute*

[23] For the Hera I case, see here, for the Turba case here, and for the Destan case here.

**Vessels involved in other segments of the shadow oil trade have also been involved in accidents.** This includes tankers carrying Iranian or Venezuelan cargoes (see Figure 4). In May 2023, the ***Pablo***, a 27-year old Gabon-flagged ship without known P&I insurance suffered a large explosion near Indonesia.[24] Fortunately, the ship with a capacity of 700,000 barrels was empty at the time. It had actually been sold to be scrapped in 2018 at the age of 21, but was repurposed to transport Iranian oil after the US reimposed sanctions on the country. A year later, the ***Ceres I***, a 23-year old tanker sailing under the flag of São Tomé and Príncipe and previously involved in the Iran oil trade collided with another tanker near Singapore, causing an oil spill.[25] The Ceres I was empty, but the other involved vessel, Singapore-flagged mainstream tanker Hafnia Nile, was carrying 300,000 barrels of Naphtha. Interestingly, the Ceres I switched off its AIS signal after the collision and attempted to flee the scene before being apprehended by Malaysia's coast guard. Other incidents involved the ***Petion***, which collided with another vessel near Cuba in March 2024 coming from Venezuela, the ***Liberty***, which ran aground in the Singapore Strait in December 2023 while carrying Venezuelan oil, and the ***Feng Thai***, which caused an oil spill during the unloading (of Iranian cargo) at a terminal in Eastern China in March 2022. In previous years, shadow fleet vessels had been involved in other major spills, including the ***Emerald*** (Eastern Mediterranean, February 2021) and the ***Sinopa*** (Red Sea, October 2019).[26]

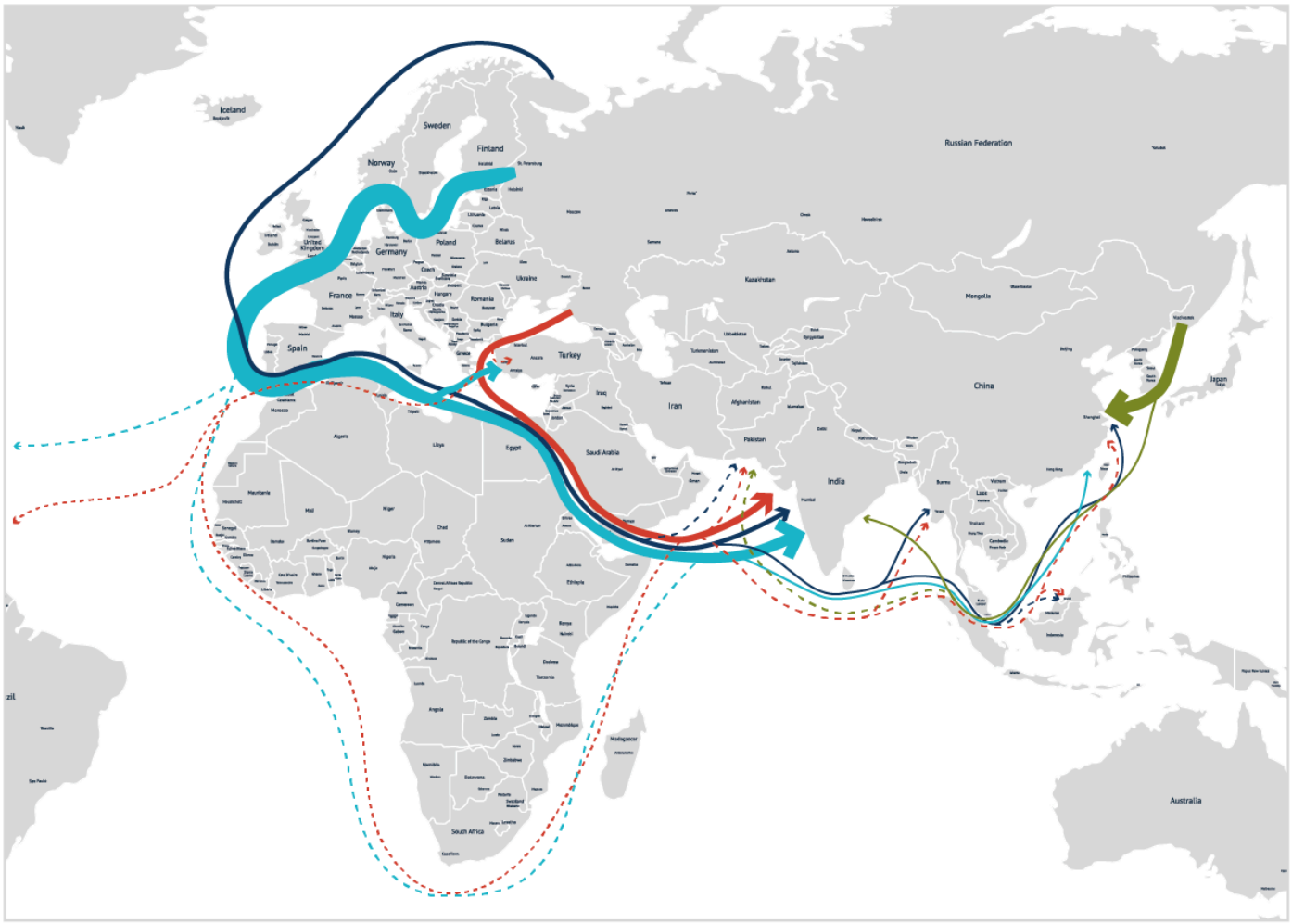
## A Disaster Waiting to Happen on Europe's Doorstep

**Russia remains heavily dependent on exports from Baltic and Black Sea ports.** Russian oil production is concentrated in the European part of the country as are refining capacities. In addition, the infrastructure for exports of crude oil and oil products remains geared towards traditional markets in the West (see Figure 5). This means that, for the time being, Russia has no choice but to ship the overwhelming majority of its oil from ports in the Baltic and Black Seas. In January-June 2024, 48% of seaborne exports came from the former and 24% from the latter. While Russia's export facilities remain the same, the buyers of its oil have changed significantly since many countries imposed embargoes on its oil since the start of the full-scale invasion, with India now the most important new destination. As a result, Russian oil is traveling much farther and large quantities pass close to many countries' territorial waters on aging and underinsured shadow tankers.

**Large quantities of Russian oil regularly pass through European waters.** Due to the aforementioned developments, significant amounts of Russian oil exports move through several sensitive areas. They are: the Gulf of Finland (or Viro Strait) between Estonia and Finland, the Danish Straits, the English Channel (or Strait of Dover), the Strait of Gibraltar, and, for exports of Russian oil out of the Black Sea, the Aegean Sea. In January-June 2024, every month, more than 90 million barrels of Russian oil – crude oil and products – passed through Northern European waters. For the Aegean Sea, the corresponding number is 50 million barrels. A large share of these shipments subsequently moves through the Strait of Gibraltar.[27] The volumes are broadly stable compared to 2023, which reflects the serious infrastructure constraints outlined above. Altogether, more than 70% of total Russian seaborne oil exports must pass through one or more of these locations.

[24] See *How a burnt out, abandoned ship reveals the secrets of a shadow tanker network*, Guardian, September 18, 2023.
[25] See *Malaysia Appregends Shadow Tanker After it is Towed from Scene of Accident*, Maritime Executive, July 20, 2024.
[26] For the Liberty case, see here, for the Feng Thai case here, for the Emerald case here, and for the Sinopa case here.
[27] The issue of Houthi attacks on ships in the Red Sea may change delivery routes but not fundamentally alter the volumes shown here. If ships transporting Russian oil decided to avoid this area, voyages from Baltic Sea ports would no longer be entering the Mediterranean; voyages from Black Sea ports, however, would need to go through the Strait of Gibraltar.

**Figure 5. Visualization of Russian Oil Exports**




*Source: KSE Institute*

**Hundreds of shadow tankers threaten the environment every month.** A closer look at the vessels that are transporting Russian oil illustrates the associated environmental risks (see Figure 6 & Table 1). In January-June 2024, 36.0 million barrels of crude oil and 14.9 million barrels of oil products moved through the Gulf of Finland , Danish Straits, and English Channel per month on shadow tankers, i.e., tankers that lack adequate oil spill insurance. Their advanced age – 17 years on average for crude oil tankers and 18 years for oil product tankers – is an additional problem. It is also instructive to look at the actual number of shadow fleet voyages. Roughly 50.9 million barrels in exports mean that almost 90 loaded shadow tankers pass through these waters every month – and an equal number of empty ones returning to Russia. Thus, almost 6 times per day, on average, coastal communities in Baltic and North Sea states must hope that no major accident occurs.

The situation is no less problematic in the Aegean Sea. In January-June 2024, an average 20.9 million barrels of Russian crude oil and 11.9 million barrels of oil products moved through this area on shadow tankers every month. These volumes are reflected in 67 individual voyages with cargo on board on vessels that are on average 18 years old. For the Strait of Gibraltar, we find that around 52.1 million barrels of Russian oil – 40.6 million barrels of crude oil and 11.5 million barrels of oil products – passed through on average per month in January-June 2024 on shadow tankers with a similar age structure than the ones described above. These

volumes represent 83 individual voyages with cargo on board. Besides, Russian shadow tankers regularly conduct ship-to-ship (STS) operations in the Mediterranean – off the coast of Greece, largely in the Lakonia Bay[28], around Malta, and close to Ceuta – to facilitate exports to destinations such as China and India.

**Figure 6. Russian Oil Passing Through European Waters on Shadow Tankers**




*Source: KSE Institute*

[28] A series of naval drills in the Bay of Laconia has successfully forced tankers to relocate elsewhere for STS transfers. See *Greece Takes Effective Action to Deter Russian Oil Transfers*, Maritime Executive, July 15, 2024. For shadow fleet operations in the Mediterranean, see *Red Flags: Russian Oil Tradecraft in the Mediterranean Sea*, Alessio Armenzoni, Giangiuseppe Pili, and Gary C. Kessler, U.S. Naval Institute, June 2024.

**Table 1. Summary of Russian Oil Passing Through Key Areas in January-June 2024**

| | Northern Europe[29] | Strait of Gibraltar | Aegean Sea |
|---|---|---|---|
| ***Crude Oil*** | | | |
| Average monthly volume (share of total seaborne) | 48.2 million bbl (48.3%) | 56.0 million bbl (51.3%) | 26.9 million bbl (24.6%) |
| o/w on shadow fleet (share of total seaborne) | 36.0 million bbl (32.9%) | 40.6 million bbl (37.1%) | 20.9 million bbl (19.1%) |
| Average monthly number of shadow fleet voyages | 49 | 53 | 25 |
| Average age of shadow fleet vessels | 17 | 17 | 16 |
| ***Oil Products*** | | | |
| Average monthly volume (share of total seaborne) | 42.1 million bbl (57.7%) | 29.4 million bbl (40.1%) | 22.7 million bbl (31.1%) |
| o/w on shadow fleet (share of total seaborne) | 14.9 million bbl (20.2%) | 11.5 million bbl (15.6%) | 11.9 million bbl (16.3%) |
| Average monthly number of shadow fleet voyages | 39 | 30 | 42 |
| Average age of shadow fleet vessels | 18 | 19 | 19 |

*Source: Equasis, International Group of P&I Clubs, Kpler, KSE Institute*

**The costs of an oil spill would be significant for coastal communities.** Exact clean-up costs and the extent of other damages are difficult to assess as they depend on many factors. A look at past disasters gives a sense of the magnitude, however. In 1989, the ***Exxon Valdez*** ran aground off the coast of Alaska, leading to a quarter million barrels of oil spilling into the Prince William Sound. Exxon, the ship's operator, is estimated to have spent $2 billion on the clean up. As far as Europe is concerned, the last major oil spill stems from 2002, when the ***Prestige*** sank 250 kilometers from the Galician coast and roughly 420,000 barrels of heavy fuel oil leaked from the ship. In this case, the clean up cost up to $3 billion. The biggest oil spill, by far, resulted from the explosion of the ***Deepwater Horizon*** oil rig in the Gulf of Mexico in 2010. An estimated 5 million barrels of oil spilled into the ocean and the platform's operator, BP, was forced to set up a compensation fund of $20 billion. In a recent submission by State Capture and KSE Institute to the UK Parliament, the clean-up cost for an oil spill from a shadow fleet tanker in the English Channel was estimated at up to £1.05 billion.[30]

[29] Includes the Gulf of Finland (i.e., Viro Strait), Danish Straits, and English Channel (i.e., Strait of Dover).
[30] See *Written evidence submitted by State Capture: Research and Action and the Kyiv School of Economic Institute* here.

# Creating "Shadow-Free" Zones

**This paper proposes a mechanism designed to create "shadow-free" zones** by excluding shadow fleet tankers without adequate insurance from certain areas, where a coalition of countries aims to protect the environment from oil spills. It consists of two components: (I.) a requirement to disclose information about oil spill insurance; and (II.) a multi-tiered enforcement mechanism to ensure compliance with this requirement.

**The disclosure requirement aims to create transparency regarding the shadow fleet's insurance.** As mentioned above, such transparency is currently essentially absent, which makes it difficult to even gauge the extent of the environmental risks stemming from uninsured or underinsured vessels. To change this, it is critical to (1) define what qualifies as "adequate" oil spill insurance; (2) require disclosure of vessels' spill insurance arrangements and the involved entities' financial records; and (3) evaluate if the requirements have been met.

**A multi-tiered enforcement mechanism will ensure compliance with the requirements.** We propose to rely on a set of mechanisms to ensure that vessels in violation of the insurance verification requirement are effectively banned from certain waters, including: (1) engaging in diplomatic outreach to entities tasked with enforcement within the existing regulatory framework, including flag states and certification societies; (2) creating commercial incentives for participants to ensure compliance by holding any involved entities liable for damages caused due to negligence; (3) designating vessels that fail to provide insurance information or whose insurance is deemed as inadequate under IMO guidelines to remove them from commercial operations; and (4) in exceptional circumstances, interdicting vessels that pose a clear and present danger.




## Oil Spill Insurance Disclosure Requirement

1. **Definition of what constitutes "adequate" oil spill insurance:** We propose that a coalition of countries, including key coastal states in the Baltic Sea, North Sea, and Mediterranean, assert the jurisdictional authority of its members to safeguard their waters from tankers that violate international law, IMO guidelines, and established industry standards. A key element of this is to emphasize that rules and regulations related to oil spill (i.e., protection and indemnity, P&I) insurance predate the situation surrounding the Russian shadow fleet – they were codified in the 1992 International Convention on Civil Liability for Oil Pollution Damage (CLC) and the IMO has developed detailed diligence guidelines for the assessment of the adequacy of P&I insurance.[31] These are standard fare for due diligence in the financial industry and include the transparency and independent evaluation of insurers' finances. It is the failure to effectively enforce them via flag states that requires a different approach. Ultimately, coalition countries should also impose requirements with regard to structural

[31] See the 1992 International Convention on Civil Liability for Oil Pollution Damage (CLC) here. See also *Guidelines for accepting insurance companies, financial security providers and the International Group of Protection and Indemnity Associations (P & I Clubs)* as approved by the IMO's Legal Committee here.

surveys of vessels, i.e., only those conducted by members of the International Association of Classification Societies (IACS) should be accepted by flag states and other actors.

2. **Requirement to disclose information about a vessel's insurance:** *First*, all tankers passing through certain areas – e.g., the Gulf of Finland, Danish Straits, English Channel, Strait of Gibraltar, and Aegean Sea – will be required to disclose information about their oil spill (P&I) insurance provider. While passage rights in international straits are expansive under maritime law, we do not believe that an insurance verification requirement violates such rights as they are not unconditional.[32] Mainstream vessels already routinely do this through Equasis, a multilateral, open-access database dedicated to safety in the shipping industry. *Second*, insurance providers will be required to disclose financial information in line with IMO guidelines and established industry practices, including three years of audited financial statements and a satisfactory credit rating report issued by a reputable international rating agency. Disclosures will also be required around third-party reinsurance. This does not impose an undue burden; instead, it protects coastal states and puts all shipping industry companies on a level playing field. IG-insured tankers already meet these requirements and shadow tankers should have similar information readily available as it is needed for their annual submission to flag states.

3. **Review of provided information and warning against return:** Coalition authorities will establish if sufficient information was provided and if the insurance coverage meets the standard outlined above. For this purpose, it is important to track all vessel movements in certain areas. Ships generally transmit information about their position via the Automatic Identification System (AIS), but shadow tankers are known to turn off their transponders or deliberately manipulate AIS data (i.e., "spoofing"). While we believe that it is unlikely for them to do so consistently in narrow and heavily-trafficked bodies of water such as the ones in question here, other options exist to track their activities, including radar and visual inspections. Needless to say, concealment of a vessel's location and/or activities will be interpreted as a violation of the disclosure requirement. In fact, carriage of AIS and voyage data recorders (VDRs) is mandatory for the vast majority of ships according to the International Convention for the Safety of Life at Sea (SOLAS).[33] It should be noted that the EU's designation criteria for vessels, defined in the 14th sanctions package, specifically mention irregular and high-risk shipping practices as outlined in IMO regulations, including the switching off of AIS transmissions.[34] If disclosures are satisfactory, shadow tankers will be free to continue operations. If, however, they are unsatisfactory, the vessel will be deemed non-compliant, i.e., found to be in violation of international maritime law and IMO regulations.

[32] For instance, Denmark has stated in the context of the construction of a bridge in the Great Belt that ''…Denmark accepted in 1857, in response to the interest of the international community in free maritime navigation and trade, certain well defined limitations to its sovereign rights" (see para. 115 here). However, it stated that "[i]t would not be fair and reasonable to interpret the long-standing commitments assumed in 1857 as imposing upon Denmark a sort of permanent and expanding servitude *non-aedificandi* over its own territory which would prevent its economic progress and impede the public works required for the well-being of its population" (see para. 116 here), concluding that "an absolute and unconditional right of passage through the Danish Straits has no foundation in international customary law" (see para. 118 here). Therefore, requirements to provide evidence of adequate insurance should not be seen as an infringement.

[33] According to Regulation 19 of SOLAS Chapter V (see here), AIS must be fitted aboard all ships of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages, and all passenger ships regardless of size. The regulation requires that AIS shall remain operational at all times except when international agreements, rules, or standards provide for the protection of navigational information. AIS shall automatically transmit the ship's identity, type, position, course, speed, navigation status, and other safety-related information to appropriately equipped shore stations, other ships, and aircraft; receive such information from similarly-fitted ships; monitor and track ships; and exchange data with shore-based facilities.

[34] See Article 3s, 2(b) of Council Regulation (EU) No 833/2014 here and IMO Resolution A.1192(33) here.

## Mechanisms to Enforce Insurance Requirement

1. **Diplomatic outreach to entities currently tasked with enforcement:** Coalition governments should exert pressure on key flag state authorities to play the role that is assigned to them in the existing framework – i.e., to diligently verify the adequacy of oil spill insurance when providing or renewing registrations.[35] The fact that some flag states – including those gray- and black-listed by the Paris MoU like Panama, the Cook Islands, Cameroon Palau, and Vietnam, or those with no meaningful prior role in global shopping like Gabon – currently fail to fulfill their role should not be treated as an inevitable outcome; ultimately, the credibility of the shipping industry's regulatory framework is at risk beyond the specific challenges and environmental concerns stemming from the Russian shadow fleet. Flag states have, in fact, responded to such diplomatic outreach in the past.[36] Therefore, the IMO and sanctions coalition countries should continue pursuing their efforts in this regard. More broadly, coalition countries should step up their involvement in international institutions such as the IMO in order to strengthen their capacity and leverage – similar to steps taken by the United States and its allies after the terrorist attacks of September 11, 2001, regarding the regulation of the international financial system.

   Similar pressure should be applied to ship classification societies – including the Indian Register of Shipping that plays a growing role with regard to the Russian shadow fleet –, which establish and maintain technical standards. Without a classification certificate, ship owners are not able to register and/or insure a vessel, and a certificate may be required by charterers and/or for entry into certain ports. We acknowledge that stepped-up pressure on actors within the system to follow existing regulations would accelerate Russia's attempts to find alternative flag states (and service providers) and, thus, will be insufficient by itself to effectively address the challenge posed by the shadow fleet. However, any such steps will create additional costs and, therefore, cut into Russia's earnings.

2. **Commercial incentives for participants to ensure compliance:** Anyone involved in the operation of tankers that fail to comply with international maritime law and IMO regulations, including with regard to the adequacy of oil spill insurance, – flag registries, certification societies, ship owners, managers, and charterers – should be held liable for the damages caused by an incident if they played any role in the set up and/or verification of such insurance arrangements. The United Nations Convention on the Law of the Sea (UNCLOS) already states that, in the event of marine pollution, the flag state or a private entity affiliated with the vessel bears responsibility for the damage[37]. Thus, state liability and individual

[35] According to UNCLOS, flag states are obligated to ensure compliance with applicable international rules and standards, and with the domestic laws of the flag state (Article 217) and to adopt domestic laws that have the same effect as that of international rules and standards recognized by competent international organizations and other entities (Article 211). As was noted by the European Court of Justice in the *Intertanko* case (see here): "[I] is the flag State which, under the Convention, must take such measures as are necessary to ensure safety at sea and, therefore, to protect the interests of other States. The flag State may thus also be held liable, vis-à-vis other States, for harm caused by a ship flying its flag to marine areas placed under those States' sovereignty, where that harm results from a failure of the flag State to fulfill its obligations". Further, flag states' fulfillment of their obligations is verified through the IMO Member State Audit Scheme (IMSAS, see here) which uses the IMO Instruments Implementation Code (III Code).

[36] For instance, Panama, after insistence from the United States, deflagged 136 tankers involved in violations of sanctions on Iran (see here). More recently, on September 30, 2024, the Panama Maritime Authority announced that, following an internal investigation, it would automatically cancel the registration of any vessel found to be involved in illicit activities or that changes its flag in order to evade sanctions. Furthermore, Panama joined the Registry Information Exchange Agreement (RISC) to prevent ships from switching registries in order to obscure illegal activities. It is being reported that these measures are a result of the inclusion of seven Panama-flagged vessels on OFAC's SDN list (see here).

[37] Specifically, UNCLOS article 235 obligates states to "ensure that recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine

liability exist concurrently. Regulators should consider whether flag state-issued blue cards are sufficient for involved parties to assess the adequacy of insurance if the flag state in question is gray- or black-listed. This could fundamentally change the incentive structure for actors, including those that are unlikely to yield to diplomatic efforts. They should not be able to escape responsibility by hiding behind insurance coverage that only exists on paper. It is important to emphasize that the imposition of civil or criminal penalties on individuals and/or legal entities associated with shadow tankers does not impede the rights of transit or innocent passage granted under international maritime law. For instance, the European Court of Justice (ECJ) examined a similar issue in the *Intertanko* case.[38]

The aforementioned *Intertanko* decision by the ECJ can be interpreted to confirm that coastal states should enjoy broad prescriptive jurisdiction when it comes to enforcement measures directed towards individuals and legal entities. Consequently, we propose that concerned states also adopt legislation imposing criminal liability for senior crew members, charterers, and shipowners *for failure to comply with the insurance verification requirement proposed in this report*. This is an issue separate from liability for marine pollution. Such provisions should dissuade individuals and private entities from dealing with shadow tankers and, thus, limit options available to Russia. Furthermore, criminal charges would trigger the arrest of vessels when they enter ports of coalition countries or third states, with which concerned coastal states have treaties regarding the recognition and enforcement of judgements.

Enforcement could be a challenge – at least in the short run. Opaque ownership and management structures within the shadow fleet and the fact that many involved entities are located in jurisdictions that will not enforce claims against them means that risk calculations will not change for many of them. Ultimately, entities will simply disappear, while operations continue under a different name. In addition to many entities being able to avoid ever paying out, it could take a long time to settle claims. Over time, coalition countries should invest in strengthening the enforcement side of the global shipping industry's regulatory framework by stepping up their involvement in the IMO and other organizations.

3. **Designation of shadow fleet vessels without adequate insurance:** The most potent enforcement mechanism consists of the ability to effectively remove vessels from commercial operations through their designation. Any tanker that fails to comply with the aforementioned P&I insurance disclosure requirement or whose oil spill insurance is determined to not meet the IMO's standards for adequacy will be allowed to continue its voyage, meaning its right to free passage under international maritime law will not be interfered with. However, the vessel will subsequently be designated – i.e., added to sanctions lists – by the respective competent authorities of coalition members. In fact, with the 14th

environment by natural or juridical persons under their jurisdiction". Further, civil liability (by private parties) is governed by the 1969 Civil Liability Convention and the 1971 Fund Convention, the 1992 Civil Liability Convention, the 1992 Fund Convention, and the 2003 Supplementary Fund Protocol. Even though the 1992 Conventions substituted their 1969/1971 predecessors, some states are still parties only to the earlier regime.

[38] See here. The court considered whether Directive 2005/35/EC of the European Parliament and Council (see here) on ship-source pollution, which requires EU member states to ensure that pollution caused by serious negligence triggers criminal sanctions within their legal systems, was compatible with the UNCLOS. The court observed that, according to UNCLOS provisions, coastal states may, in the exercise of their sovereignty within their territorial waters, adopt laws and regulations for the prevention, reduction, and control of marine pollution from foreign vessels, including those exercising the right of innocent passage. The Court refused to consider the compatibility of specific provisions affecting individuals and legal entities, since such provisions would be outside the scope of UNCLOS. The court noted that "UNCLOS does not establish rules intended to apply directly and immediately to individuals and to confer upon them rights or freedoms capable of being relied upon against States, irrespective of the attitude of the ship's flag State".

sanctions package in June 2024, the EU has explicitly established that violations of IMO guidelines, including those regarding oil spill insurance, can be potential grounds for vessel designations.[39]

## Box 1. Effectiveness of Vessel Designations

As of the end of August, 74 vessels have been designated by the US, EU, and/or UK.[40] We find that the overwhelming share of targeted tankers – around two-thirds – has effectively been removed from commercial operations by these measures and remain idle (see Figure 7). In many cases, the effect of the designations was instantaneous, with the involved players – oil traders, buyers, financial institutions, etc. – unwilling to continue any dealings. For instance, some vessels spent several weeks or even months before they could find a way to discharge their cargo.[41] Ultimately, OFAC and other enforcement agencies allowed for voyages underway at the time of the designation to be completed in order to avoid that significant quantities of oil are floating around on aging and inadequately insured tankers. Currently, 50 vessels are unloaded (or partially loaded) and drifting in different areas. Some, however, are underway (12) or appear to be planning voyages (5). This does not mean that the vessels will truly manage to resume operations – specifically find a buyer for the oil –, but such developments require close monitoring. In a limited number of cases (7), we find that a sanctioned tanker reached its destination and discharged its cargo – either in a port or via a ship-to-ship transfer.[42] These cases require further attention as enforcement action will need to be taken against entities interacting with the ship or its cargo.

**Figure 7. Status of designated vessels**




*Source: Kpler, KSE Institute*

Altogether, we estimate that the acquisition of the designated vessels cost Russia – or Russia-linked actors – at least $2.5 billion. The removal of shadow fleet tankers from the market and increased risks for entities involved in the shadow fleet's operation also temporarily widened the discount on Russian export prices.[43] It is the limited nature of the designation campaign that has allowed Russia to replace the "lost" capacity and the discount to narrow again in recent months.[44] Nevertheless, vessel designations have demonstrated their potential to effectively rein in the shadow fleet and eat into Russia's export earnings from oil.

[39] See Council Regulation (EU) No 833/2014, Article 3s, paragraph 2 here: "Annex XLII shall include vessels that: (...) (b) transport crude oil or petroleum products, as listed in Annex XXV, that originate in Russia or are exported from Russia while practicing irregular and high-risk shipping practices as set out in the International Maritime Organisation General Assembly resolution A.1192(33)"

[40] We consider a vessel to be "sanctioned" or "designated" if it has been listed by the respective competent authority in the United States, European Union, or United Kingdom. As of now, a total of 64 vessels – 49 crude oil tankers and 15 oil product tankers fall in this category. For details on the designated vessels, see Appendix Tables 4 and 8 here.

[41] See the example of the Ns Century on slide 4 of the March 2024 Russia Chartbook.

[42] See the examples of the Bratsk and Belgorod on slide 9 of the August 2024 Russia Chartbook.

[43] See slide 4 of the August 2024 Russia Chartbook.

[44] For details on the replacement of sanctioned tankers, see here.

To date, such measures have proven extremely effective at limiting the ability of designated tankers to continue operating (see Box 1). In addition, they create significant sunk costs for anyone who invested in the acquisition of shadow tankers. The 74 vessels currently designated by the US, EU, and/or UK are estimated to have cost at least $2.5 billion. We believe that the *threat* of designations will ultimately prove sufficient to induce compliance and that only a limited number of listings will actually be required. This is very important from a perspective of capacities in the market available for the transport of Russian oil and, thus, concerns about the stability of global oil markets and prices (see chapter below).

4. **Interdiction of specific vessels in extraordinary circumstances:** The strategy outlined above aims to incentivize actors to comply with existing regulations and attempts to complicate shadow fleet operations, while avoiding interference with vessels' rights of freedom of navigation under international maritime law. However, we should not rule out the interdiction of shadow tankers altogether. Under exceptional circumstances such as in a situation of a clear and present danger to the environment or the safety of maritime traffic, coalition countries should reserve the right to stop tankers. This would not be done to address the shadow fleet in a broader sense but to avoid disaster in a specific situation.[45]

   Enforcement powers of a coastal state under international law differ considerably depending on whether a vessel is voluntarily within the state's ports of offshore terminals, or whether it is navigating through one of the maritime zones within the state's jurisdiction.[46] When it comes to the latter, rights are rather limited and allow for intervention only "following upon a maritime casualty or acts relating to such a casualty".[47] Coastal states are generally restricted by UNCLOS in adopting legislation that would limit navigation through specific maritime zones. On the one hand, Article 211(4) reiterates the states' rights to exercise their sovereignty within their territorial sea and permits the adoption of laws and regulations for the prevention, reduction, and control of marine pollution from foreign vessels. However, it requires that such measures do not hamper their right of innocent passage. In a similar way, this applies to states bordering straits based on Article 42(2), which establishes that laws and regulation shall not have the practical effect of denying, hampering, or impairing the right of transit passage.

[45] Ultimately, it may become necessary to find ways to limit the navigation of unsafe shadow tankers in certain areas altogether. The reason is that the presence of adequate P&I insurance does not ensure sufficient compensation in case of an environmental disaster. In fact, the practical difficulties can be severe. One example for this issue is the case of the Prestige, which sank 250 kilometers from the Galician coast in 2002 and roughly 420,000 barrels of heavy fuel oil leaked from the ship, resulting in over €4 billion in total damages (including clean-up costs). On paper, the situation was clear: Spain was party to the 1992 Civil Liability Convention (CLC) 1992 Fund Convention, and the Prestige was insured by the London P&I Club with insurance coverage including liability for pollution risks. Under the CLC, the ship owner was entitled to limit its liability to $26.7 million, which the P&I Club reportedly paid, with the Fund providing an additional $144 million in compensation. In 2017, after 15 years of litigation, a Spanish court ordered the insurer to pay ~€1 billion in damages. However, the P&I Club launched arbitration and court proceedings in the UK in an attempt to challenge the Spanish court's decision. In 2022, 20 years after the Prestige incident, the European Court of Justice confirmed the Spanish Supreme Court's decision. According to publicly-available information, the P&I Club paid €22.8 million and the Fund €147.9 million in compensation in 2022. We are not aware of any developments that would indicate further payments. However, litigation continues in France and the UK.

[46] Port states enjoy much broader authorities known as port state control. According to Article 220(1), the port state may institute proceedings in respect of any violation of its laws and regulations adopted in accordance with UNCLOS or applicable international rules and standards for the prevention, reduction, and control of pollution from vessels when the violation has occurred within the territorial sea or the exclusive economic zone of that state. The physical inspection of vessels, their detention or arrest is generally accepted by international and national law provided that the port state complies with due process rules and does not detain the vessels beyond a reasonable term.

[47] UNCLOS defines "maritime casualty" as a collision of vessels, stranding or other incident of navigation, or other occurrence on board a vessel or external to it resulting in material damage or imminent threat of material damage to a vessel or cargo.

Nevertheless, we believe that it should be possible to make an argument in support of states' rights to physically engage ships enjoying innocent or transit passage. Article 194(4) of UNCLOS stipulates that "in taking measures to prevent, reduce or control pollution of the marine environment, States shall refrain from unjustifiable interference with activities carried out by other States in the exercise if their rights and in pursuance of their duties in conformity with [UNCLOS]." It can be argued that "unjustifiable interference" should be relied upon as the overarching framework for understanding states' rights and responsibilities in the realm of environmental protection – and that physical engagement of shadow tankers, which pose a clear and imminent threat to the environment should be regarded as justifiable.

Further, it can be argued that shadow fleet operations violate the scope of innocent passage and as such should be denied this right. According to UNCLOS Article 19(1), passage is innocent as long as it is not prejudicial to the peace, good order, or security of the coastal state. Further, passage can be found to violate this provision if, among other things, the vessel in question is engaged in the loading or unloading of any commodity, currency, or person contrary to the customs, fiscal, immigration or sanitary laws and regulations of the coastal state or it is engaged in any act of willful and serious pollution. Importantly, the danger posed by shadow tankers has been recognized by the IMO in Resolution 1192(33), where the IMO noted that "the ships in the 'dark fleet' or 'shadow fleet' pose a real and high risk of incidents, particularly when engaging in ship-to-ship (STS) transfers, as they disguise the cargoes' destinations or origins, or otherwise avoid oversight or regulation by flag or coastal States".[48]

## Leverage in Different Coalition Jurisdictions

**The leverage of vessel designations differs conceptually** although most tankers listed by *any* of the three discussed here – the US, EU, and UK – appear to be unable to continue commercial operations. Conceptually, designations in the **United States**, i.e., by the U.S. Treasury Department's Office of Foreign Assets Control (OFAC) should have the strongest impact due to the implied threat of secondary sanctions. This means that any person or entity interacting with a designated vessel or the cargo it carries may face enforcement action by OFAC. Such action would mean to be disconnected from the U.S. financial system (e.g., correspondent accounts) and the U.S. dollar. For most players in the global oil trade (and beyond), this is akin to a corporate death sentence as at least part of their business is conducted in dollars or touches the U.S. financial system in other ways. The fact that Russia has moved a significant share of its exports to settlements in different currencies does not change this since other business remains dollar based. For instance, a third-country refinery does not only buy Russian crude oil (in rubles, dirhams, rupees, etc.) but also other countries' oil, and it sells much of its output (i.e., oil products) on the global market in dollars. For any internationally-operating bank, it is inconceivable to do business without access to dollars or correspondent accounts in the US, no matter the currency used in transactions related to Russian oil. It is theoretically possible to set up networks of entities that are insulated from US financial sanctions – but not at the scale needed for Russian oil exports. In addition, moving to different currencies for trade settlements has unintended consequences insofar as it may be challenging to subsequently exchange such large amounts of money into G7 currencies.[49]

Neither the **European Union** nor the **United Kingdom** employ secondary sanctions, although they have found ways to target third-country entities involved in sanctions circumvention.[50] And they are not without leverage to

[48] See here.
[49] See *Russia built covert trade channel with India, leaks reveal*, Financial Times, September 4, 2024.
[50] See, for instance, mechanisms introduced by the European Union in its 11th sanctions package with regard to third-country entities involved in the supply of export-controlled goods to Russia.

ensure the impact of their vessel designations. Actors involved in the trade with Russian oil depend on access to their markets in several ways: refineries sell large quantities of their oil products to European buyers, banks operate in their jurisdictions and are regulated by their authorities, and the shipping industry depends heavily on other services from there such as insurance. Again, this does not have to be the case for a specific shipment of Russian oil or other transactions related to it, but can stem from other parts of an entity's business. These jurisdictions have also found legal mechanisms to go after third-country actors without having to rely on secondary sanctions, which they reject on the basis of principle. For instance, the EU, in its 11th sanctions package in June 2023, made it possible to directly sanction third-country actors which are found to have facilitated export controls violations of EU persons or entities with regard to war-critical goods. This does not mean that sanctions take on an extraterritorial element (i.e., secondary sanctions) but fulfills the same objective of targeting those involved in the circumvention and/or violation of sanctions abroad. A similar instrument could be set up for those dealing with designated shadow fleet vessels or their cargo. Countries can also impact the behavior of third-country actors through diplomatic outreach, and have done so regularly.

**It is critical to maintain the credibility of the threat.** Sanctions tend to lose some of their effectiveness over time as involved actors test their boundaries and adapt to the new environment. This will inevitably happen with regard to vessel designations as well. To avoid dramatic sunk costs, shadow fleet operators will try to return some of the tankers to service. Which means that someone somewhere will buy oil from a designated vessel, some bank will carry out the financial transactions behind it, and so forth. In fact, we have already seen some isolated cases where this happened.[51] It is critical that enforcement action is taken against any involved entities. Otherwise, compliance will dissipate and a key tool to reign in the shadow fleet will lose its impact.

## Advantages of the Proposed Strategy

**The proposed mechanism delivers a range of positive outcomes.** To begin with, it addresses urgent environmental risks stemming from aging and inadequately insured tankers by significantly reducing Russia's ability to use its shadow fleet. Because the mechanism relies on blocking orders as a clearly communicated deterrent, it is likely that few, if any, vessels would need to be designated in such a way. Any shadow tanker removed from operations represents significant sunk costs – after all, Russia has spent an estimated $10 billion on building up its shadow fleet. As shadow tankers gradually drop out of the Baltic trade, it is expected that mainstream tankers will expand their operations to fill the gap. Russia may be able to reassign some of the vessels to its Pacific Ocean trade, but would not be able to make use of a very large number of non-compliant tankers. They would likely be sold back into the mainstream trade, where proper insurance would be restored, or retired from regular service if too old or poorly maintained. In any event, the process would be gradual and is expected to have minimal impact on the global oil market. Reining in the shadow fleet has another benefit: Russia would have to rely on the mainstream fleet for a significant portion of its exports once again and, thus, the price cap's leverage would be restored. However, this can only be effective if well known issues surrounding price cap enforcement are also addressed.[52] Finally, effectively enforcing existing legal requirements regarding oil spill insurance strengthens the maritime sector's regulatory framework. We

[51] See the examples of the Bratsk and Belgorod on slide 9 of the August 2024 Russia Chartbook.

[52] The issue of attestation fraud – i.e., the provision of falsified pricing information regarding Russian oil on price cap-related attestations – was first covered in "Russian Oil Exports under International Sanctions" in April 2023 with regard to crude oil exports from Russia's Pacific Ocean port of Kozmino. Additional information can be found in "Sanctions on Russian Oil Need to Be Strengthened" (July 2023) and "Bold Measures Are Needed as Russia's Oil Is Slipping Beyond G7 Reach" (November 2023).

emphasize that the mechanism proposed here to enforce a requirement for adequate oil spill insurance does not preclude coalition countries from designating additional vessels in order to step up pressure on Russia' oil export earnings as well as budget revenues, and, thus, its ability to continue its war of aggression on Ukraine.

**Legal risks and opportunities for brinkmanship are significantly reduced.** Importantly, coalition countries would not attempt to directly deny passage to non-compliant vessels – except in the case of clear and present danger. Baltic and North Sea coastal states are likely to be reluctant to do so because of two key concerns. The litigation risk stems from the fact that passage rights in international straits are quite expansive under international maritime law and often involve several layers of legal complexity. For instance, the waters of the Danish Straits are governed by UNCLOS, the 1857 Copenhagen Convention[53] (grandfathered under UNCLOS[54]), and the 1958 Geneva Convention on the Territorial Sea. For the Gulf of Finland (i.e., Viro Strait), bilateral agreements between Estonia and Finland[55] complement international conventions. It is possible that sound legal arguments could be advanced supporting the rights of one or more of these coastal states to impose insurance verification. There is a risk that such a scheme could face legal challenges from flag states in courts and arbitral tribunals as passage rights under UNCLOS are accorded to the states flagging the vessels.[56] The outcome of such disputes is uncertain. However, they could also result in partial liability of flag states as those are responsible to ensure the implementation of rules and regulations.[57]

The second concern has to do with opportunities that interdiction would provide for Russia to engage in bellicose brinkmanship. For instance, Russia could dispatch its own naval ships to escort shadow tankers, even if they are flagged by the third states and operated by non-Russian entities. Russia could also resort to quid pro quo similar to Iran's actions in July 2019, when it arrested the UK-flagged *Stena Impero* in the territorial waters of Oman[58] in retaliation for the British Navy's detention of the tanker *Grace 1* near Gibraltar.

[53] See T*reaty for the Redemption of the Sound Dues between Austria, Belgium, France, Great Britain, Hanover, the Hansa Towns, Mecklenburg-Schwerin, the Netherlands, Oldenburg, Prussia, Russia, Sweden-Norway, and Denmark*, signed at Copenhagen on 14 March 1857 (here) and Treaty between Denmark and the United States, signed on 1 April 1857. Article I of the Copenhagen Convention provides without any qualifications that no ship passing through the straits can be subjected to any detention or hindrance of its passage. Sweden and Denmark have repeatedly made statements expressing that they extend this right to all states and it is believed that this provision has an *erga omnes* status. For example, Denmark articulated its position in the *Passage through the Great Belt Case*, where it confirmed that third-party beneficiary states may invoke the passage rights under the Copenhagen Convention (see para. 105 here).

[54] UNCLOS Article 35(c) provides that nothing in Part III affects the legal regime in straits in which passage is regulated in whole or in part by long-standing international conventions in force specifically relating to such straits.

[55] See 1994 Exchange of Notes Constituting an Agreement on the Procedure to be followed in the Modification of the Limits of the Territorial Waters in the Gulf of Finland here.

[56] Law of the sea scholars often observe that UNCLOS is a product of a compromise between rights and obligations of coastal states and flag states that sometimes can be difficult to reconcile. UNCLOS Article 211 obligates flag states to adopt laws and regulations for the prevention, reduction, and control of pollution of the marine environment from vessels flying their flag or of their registry. Such laws and regulations shall at least have the same effect as that of generally accepted international rules and standards established through competent international organization or general diplomatic conference. Coastal states may, in the exercise of their sovereignty within their territorial sea, adopt laws and regulations for the prevention, reduction and control of marine pollution from foreign vessels, including vessels exercising the right of innocent passage. Such laws and regulations shall not hamper innocent passage of foreign vessels.

[57] In the *Intertanko* case (see here), the ECJ stated: "Likewise, it is the flag State which, under the Convention [UNCLOS], must take such measures as are necessary to ensure safety at sea and, therefore, to protect the interests of other States. The flag State may thus also be held liable, vis-à-vis other States, for harm caused by a ship flying its flag to marine areas placed under those States' sovereignty, where that harm results from a failure of the flag State to fulfill its obligations." Further, according to the IMO International Safety Management (ISM) Code, it is the flag States who are required to establish systems of certification, verification and control, which may be carried out either by the flag States themselves or delegated to Recognised Organisations, such as classification societies (see here).

[58] See *Iran stokes Gulf tensions by seizing two British-linked oil tankers*, Guardian, July 20, 2019.

While the *Grace 1* had no obvious legal links to Iran – the vessel was owned by a Singaporean company and flew the flag of Panama – the tanker was allegedly carrying Iranian oil, which ultimately prompted the retaliatory action against the *Stena Impero*.[59] Mobilizing the political will needed to accept such risks could be a tall order and may only be possible in response to an actual environmental disaster – when it is already too late. **Concerns about the stability of global markets are addressed separately in the following section.**

# Addressing Concerns About Oil Markets

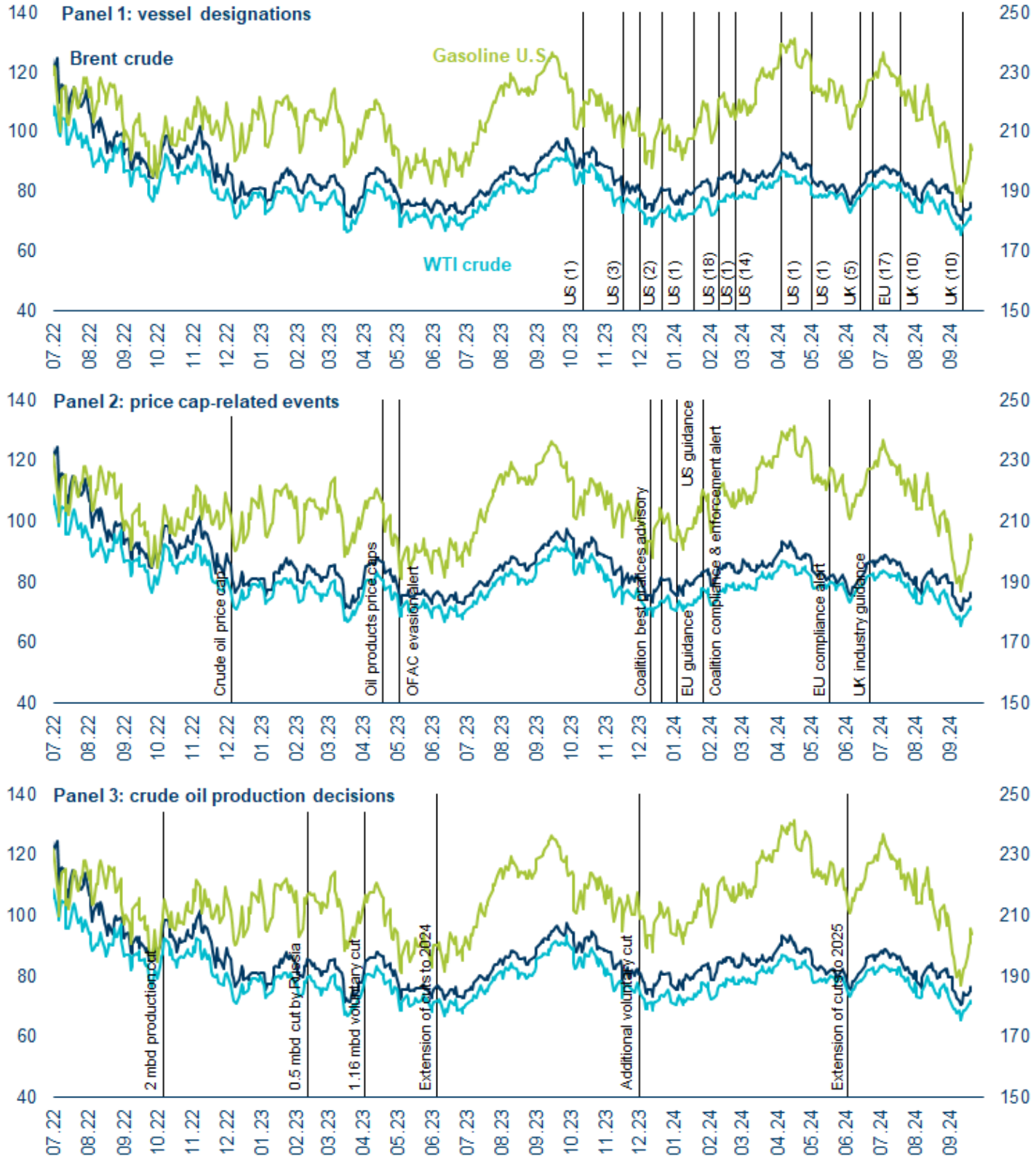
As discussed above, vessel designations have been extremely effective at taking shadow tankers out of operations. But the pace and scale of the U.S.' blocking campaign slowed in the first half of 2024 and the loss of blocked vessels was largely offset by the entry of additional tankers into the shadow fleet. However, the EU and UK have started sanctioning a significant number of tankers in recent months. What explains this restraint by OFAC? Most likely, policy makers are concerned that a more assertive approach could remove critical transport capacity, reduce Russian export volumes, and unsettle oil markets. In this section, we attempt to address such concerns by demonstrating that (1) price cap-related measures have not increased oil prices, (2) Russia cannot afford to cut oil supplies and remains incentivized to produce and export, and (3) sufficient mainstream fleet capacity is available – or can be created by arranging insurance through the International Group – to take over shipments that can no longer be carried out with shadow tankers. The key advantage of the strategy proposed here is that – if a credible designation threat is established – only a small number of tankers will actually be removed from operations, while shadow fleet owners and operators are incentivized to move back onto IG P&I insurance while accepting prices under the cap's threshold.

## Price Cap-Related Measures Have Not Increased Prices

**Oil and US domestic fuel prices do not respond to price-cap related enforcement action.** Concerns over the continued supply of Russian oil to the global market – and, thus, the stability of prices – were behind the original design of the energy sanctions regime and establishment of the price cap. Furthermore, they have led to the vessel designation campaign's limited nature and slow progress. As this paper proposes further designations – or, at least, the establishment of a credible designation threat – we believe that it is critical to address them, especially insofar as they affect the US government's thinking, where concerns are most pronounced in the lead up to the presidential election. We do so by plotting prices for crude oil (Brent and WTI) and oil products (gasoline in the US) in the context of several types of events: price cap-related enforcement action, including vessel designations, and OPEC+ decisions regarding oil production (see Figure 8).

[59] See *Seized Supertanker 'Grace 1' at Full Capacity with Crude, Gibraltar Says*, gCaptain, July 9, 2019. As for the original grounds for detention of the *Grace 1*, the vessel was seized due to the violation of sanctions imposed on Syria as it was allegedly carrying oil to a EU-sanctioned entity, the Banyas Oil Refinery Company. For their actions, authorities relied on EU regulation 36/2012, a law of Gibraltar from March 2019, and a regulation of Gibraltar from July 2019.

**Figure 8. Oil and Gasoline Prices, in $/barrel**




*Source: Bloomberg, KSE Institute*

We find that vessel designations by the US, EU, and/or UK did not impact prices in a systematic way and took place both during periods of rising and falling prices (panel 1). We believe that it is too early to assess the impact of the latest round of UK designations, which took place in mid-September. The price cap's taking effect – in December 2022 for crude oil and February 2023 for oil products – as well as official communications are also not associated with significant price changes (panel 2). However, three events related OPEC+ can be clearly linked to rising oil prices and/or the reversal of pricing trends in our view (panel 3): (i) the decision to extend previously-announced production cuts beyond 2023 and reduce production by an additional ~1.4 million barrels per day starting in January 2024, which was taken at the 35th Ministerial Meeting in June 2023; (ii) the decision to increase voluntary production cuts to 2.2 million barrels per day, which was announced in November 2023; and (iii) the decision to extend production cuts beyond 2024, which was taken at the 37th Ministerial Meeting in June 2024, as well as the announcement to extend voluntary production cuts. Oil supply decisions, thus, are driving price developments and not price cap/shadow fleet-related enforcement actions.

To further test these findings, we employ a parametric analysis by constructing an ARMA (2,1) time-series model for daily prices of Brent, WTI, and US gasoline covering the period of January 2021 to September 2024.[60] In addition to dummy variables for the dates of vessel designations,[61] we also control for OPEC+ decisions on mandatory as well as voluntary production cuts. Furthermore, we add dummy variables for the start of Russia's full-scale invasion of Ukraine and the Hamas attack on Israel on October 7, 2023. The results are summarized in Table 2 with p-values denoting statistical significance presented in parentheses. The autoregressive and moving average are significant at any conventional level of statistical significance. The null hypothesis of no impact of designations on oil prices cannot be rejected at a 10% significance level in all specifications of the model. It should be noted that the obtained standard errors for designation events are so large that we cannot even predict the sign for most of the estimated coefficients. Surprisingly, the dummy variable for OPEC+ decisions appears to also be statistically insignificant. We believe that this is due to the fact that information on forthcoming cuts had already been discussed in advance of OPEC+ meetings and, therefore, decisions anticipated by market participants and priced in before the announcement. The dummies for Russia's full-scale invasion and the start of the Israel-Hamas war were also not statistically significant in the model nor did they affect the significance of other variables.

**Stricter energy sanctions enforcement could have a disinflationary effect.** We believe that reducing the price that Russia receives for its oil exports may actually lower global oil prices as Russia would be pressed to increase volumes in order to maintain stable export earnings. This would be the case with regard to any steps that widen the discount between Russian oil and benchmark prices (e.g., Brent) by driving up transport costs and/or risk premiums, including vessel designations, but also to a general reduction in the price caps' respective levels. Fundamental to this argument is Russia's heavy reliance on export earnings as well as budget revenues from oil, which do not allow it to weaponize its exports. We discuss this point further below.

[60] Stationarity of the time series as a precondition for the parametric analysis was established. The Augmented Dickey-Fuller (ADF) test shows that all three series are non-stationary as the null-hypothesis of unit root could not be rejected at a 10% level of statistical significance. To remove the unit root, we took the logarithmic difference of prices; as a result, the null hypothesis was easily rejected by the ADF test at a 1% statistical significance level.

[61] We do not include dummies for OFAC announcements of designations if they concern only a single vessel. One of the dummies for OPEC+ production cut decisions is automatically dropped due to perfect multicollinearity.

**Table 2. Impact of designations on Oil Prices: Regression Analysis Results**

| | Dependent variable: Logarithmic change in Brent price | Dependent variable: Logarithmic change in WTI price | Dependent variable: Logarithmic change in US gasoline price |
|---|---|---|---|
| AR1 | 0.8514 (0.000)*** | 0.8340 (0.000)*** | 0.7600 (0.000)*** |
| AR2 | –0. 0669 (0.018)** | –0.083 (0.000)*** | –0.0657 (0.000)** |
| MA1 | –0. 8270 (0.000)*** | –0.8166 (0.000)*** | –0.8310 (0.000)*** |
| OFAC designation1 | –0.0061 (0.279) | –0.0065 (0.158) | –0.0018 (0.478) |
| OFAC designation2 | 0.0007 (0.929) | 0.0015 (0.84) | –0.0008 (0.860) |
| OFAC designation3 | 0.0029 (0.639) | 0.0045 (0.505) | 0.0019 (0.537) |
| OFAC designation4 | –0.0039 (0.543) | –0.0040 (0.551) | –0.0016 (0.576) |
| OFAC designation5 | 0.0053(0.461) | 0.0040 (0.614) | 0.0024 (0.567) |
| EU designation | –0.0107 (0.667) | –.0090 (0.732) | –0.0088 (0.552) |
| UK designation1 | .00085 (0.719) | 0.0064 (0.802) | 0.0095 (0.527) |
| UK designation2 | –0.0019 (0.841) | –0.0019 (0.855) | –0.0023 (0.648) |
| OPEC+1 | –0.0013 (0.470) | –0.0012 (0.552) | 0.0005 (0.583) |
| OPEC+2 | –0.0012 (0.691) | –0.0007 (0.837) | 0.00002 (0.992) |
| OPEC+3 | –0.0017 (0.551) | –0.0018 (0.512) | –0.0020 (0.241) |
| OPEC+4 | 0.0021 (0.442) | 0.0021 (0.362) | 0.0010 (0.425) |
| OPEC+5 | 0.0025 (0.784) | 0.0022 (0.842) | –0.00122 (0.845) |
| No of obs | 936 | 926 | 936 |

*Note: ***, **, * denote significance at 1%, 5% and 10% levels of statistical significance*

## Russia Cannot Afford to Cut Oil Supplies to the Market

**Cutting oil export volumes would create challenges for external accounts and the budget.**[62] Russia is still heavily dependent on sales of oil in terms of export earnings as well as budget revenues. Crude oil and oil products together accounted for an average 45% of total goods exports in the pre-Covid period (2015-19) and reached a share of 44.5% in 2023. Under the assumption of constant prices, a 10% reduction in export volumes would cost Russia almost $20 billion in earnings for a full year. The budget's reliance on oil and gas revenues has fallen somewhat in recent years from an average 41% over 2015-19 to 30.3% in 2023. While changes to the tax regime have shifted much of the burden from export duties to extraction taxes, Russia's insufficient storage capacity means that reductions in export volumes will quickly affect production levels as well. The aforementioned number even underestimates the relevance of the oil sector for budget funding as additional taxes are being generated by oil companies. A 10% reduction in crude oil production would, again under the assumption of constant prices, mean a drop in oil revenues of more than 800 billion rubles. For comparison purposes, Russia is currently targeting a full-year 2024 budget deficit of around 1.6 trillion rubles.

**The economic incentive to supply oil to the market remains intact even at much lower prices.** Not only would it be extremely painful for Russia to cut export volumes in retaliation for tougher energy sanctions, the commercial incentive to continue to supply would be very much intact. This is due to the fact that production costs for Russian crude oil are quite low – estimated at $10-15/barrel on average and $25/barrel for more

[62] For an analysis of Russia's economy, see KSE Institute's monthly Russia Chartbook.

costly fields.[63] Even if the proposed mechanism to rein in the shadow fleet resulted in 100% of Russian exports falling under the price cap, oil companies would continue to earn significant margins – thereby also allowing the state to capture some of them through taxes. This is not a purely theoretical exercise either: In the first couple of months of 2023 when the EU embargo drove down the price of Urals crude oil to around $45/barrel in FOB terms, Russia was willing to sell in order to secure a new buyer, i.e., India, and maintain export volumes. In our view, there is no reason to believe that the fundamental incentive structure remains the same.

## Sufficient Mainstream Fleet Capacity Is Available

**A credible sanctions threat is unlikely to result in a large number of designations.** For anyone involved in shadow fleet operations, having a vessel removed from commercial operations via sanctions is a major risk. The tanker's acquisition on a second-hand market with significantly inflated prices was costly and additional efforts were invested into reflagging, setting up opaque ownership and management structures, and securing alternative insurance arrangements. This will immediately turn into sunk costs once the tanker is designated, extremely lucrative business opportunities disappear overnight, and a sanctioned vessel's resale value drop to effectively zero. In our view, operators that are not somehow controlled by the Russian government or commercial Russian interests have a strong incentive to avoid such consequences and will ultimately comply with the insurance requirement proposed in this report. Importantly, they can do so easily. The acquisition of new shadow tankers is not really an option as those will immediately face the same designation threat.

**Sufficient mainstream fleet capacity could be secured without major challenges.** As we outlined above, an established and well-functioning system to provide adequate oil spill liability insurance to tankers around the world is in place. Thus, we do not see any major hurdles for current shadow fleet operators to secure such insurance once again through the International Group of P&I Clubs. Should they opt for this course of action, they would no longer be at risk of sanctions and could continue their current operations without constraints. There is one caveat: some vessels may be in a condition that does not allow P&I Clubs to provide insurance. We argue that these ships should be removed from operations in any case independent of the potential impact on global oil transport capacity due to the dramatic risk to the environment that they represent. While a return of more Russian oil to the mainstream fleet would mean more leverage for the price cap, this will only have an impact if persistent issues with the attestation system are addressed. Finally, it is important to put potential designations in the context of the global tanker fleet. The Baltic and International Maritime Council (BIMCO) estimates the global oil tanker fleet to amount to a capacity of 650 million tons – or the equivalent of more than 6,100 Aframax size vessels. KSE Institute identified ~6,500 tankers engaged in the transport of oil in international waters as of the beginning of 2024.[64] In comparison, the number of currently designated ships (74) as well as the number that may need to be sanctioned to establish a credible threat is very small.

[63] See, for instance, Rosneft's 2021 annual report.
[64] See "Assessing Russia's Shadow Fleet".