Leaktight

by Jacob Armstrong, *Sustainable Shipping Officer, Transport & Environment*

The European Commission's (COM) proposal to include maritime transport in the EU Emissions Trading System (EU ETS) has been hailed as the first step for the shipping industry to address its climate problem. Nonetheless, ports have voiced concerns that the EU ETS may lead to carbon leakage, where ships call to non-EU ports before finishing their voyage in an EU port for the sole purpose of avoiding the full carbon cost of their journey. Intuitively, this might sound reasonable, but a closer look at the matter paints a different picture.

Using Automatic Identification System (AIS) data, combined with the EU's Monitoring, Reporting and Verification (MRV) Regulation, we at Transport & Environment (T&E) analysed traffic in the biggest ports in the Baltic EU Member States: Gdańsk, Klaipėda, Riga, Tallinn (Muuga), and Sköldvik. We looked into cost factors – earnings, fuel expenses, opportunity costs (the business lost in the time spent evading) and additional port charges – to evaluate whether an evasive call to Ust-Luga (cargo-wise, the region's biggest, and Russia's second busiest overall) would be financially attractive.

A minor risk

The analysis showed that under today's carbon price (€80/tCO_2), there would be a minor 6.1% risk of evasion under the geographic scope proposed by the COM, namely all emissions from voyages between European ports, but only 50% of emissions from voyages between European and non-European ports.

We explored different scenarios that might influence evasion. In the case of high or low earnings (where freight or charter rates differed greatly from historical averages), the risk was 1.4% and 8.6%, respectively. In scenarios of high or low fuel prices (an increase/decrease of fuel prices by 50% compared to historical averages), the risk of evasion was 2.3% and 8.7%, accordingly. Finally, there was a 1.1% risk of evasion under the port congestion scenario.

On the one hand, analysis of actual voyages revealed that vessel size is, indeed, important. The smallest bulk carriers (below deadweight of 10,000) have no incentive to make an evasive port call from Argentina to Poland for carbon prices under €384/tCO_2. Even the largest vessels on this route (above 200,000 dwt) would not be tempted to evade under €112/tCO_2.

On the other hand, the total length of a voyage plays a risk evasion role. Most voyages to or from the UK, the Middle East, Africa, and the Americas would likely comply with prices under €100/tCO_2. Meanwhile, around half the voyages from East Asia and Oceania – or 16% of the total number of journeys – would be tempted to evade. It should be recalled here that this type of carbon leakage does not result in trade loss for a port (business leakage) as the ships will still visit EU ports at the end of their journey; rather, it means that the EU ETS coverage would be slightly reduced.

Carbon leakage in a broader European context

The Baltic study has interesting parallels with a previous T&E report on the risk of evasion in the three EU ports seemingly most at risk of carbon leakage: Algeciras, Rotterdam, and Piraeus. In it, we showed an 11.9% evasion risk at €80/tCO_2 under the base-case scenario, around 5% higher than in the Baltic.

Baltic marine traffic presents several particularities that explain a smaller risk of evasion. These include the draught limit of 15 metres to pass through the Danish straits, meaning that the biggest vessels – which often have a greater incentive to evade – cannot access the region (i.e., when fully laden).

Evasion in practise

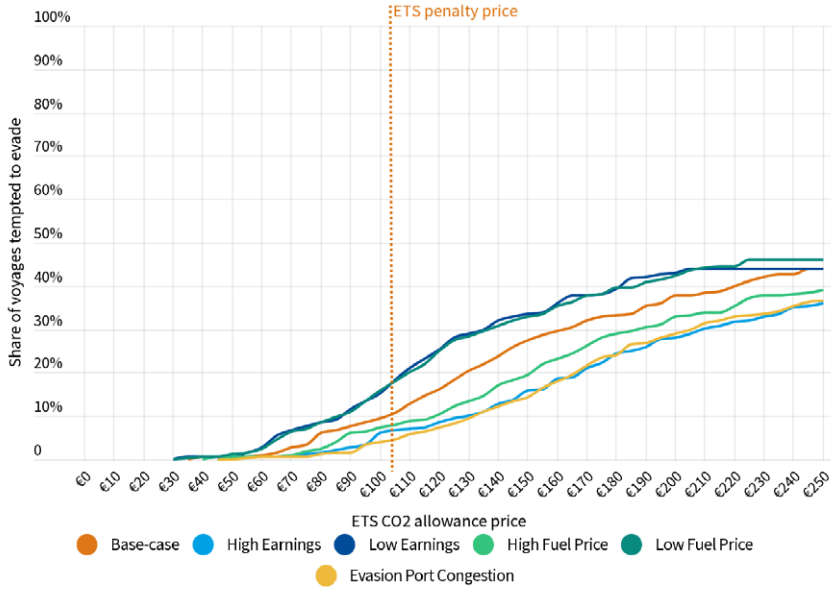
While the T&E study can help understand the theoretical risk of evasion, several issues, which would further diminish the risk of non-compliance, found themselves outside the scope of the study. For instance, the possibility that ships adapt their behaviour to reduce emissions and carbon costs – by slow steaming, among others – was not considered but is the intended and likely outcome of the EU ETS.

The practical experience of evasion also wasn't considered. In reality, bulkers and tankers (these segments make up two-thirds of Baltic traffic) aren't inclined to make evasive port calls. This is because, under EU rules, a 'port call' must involve trade, and few customers would be willing or able to trade small amounts of dry or liquid bulk goods solely to aid evasion.

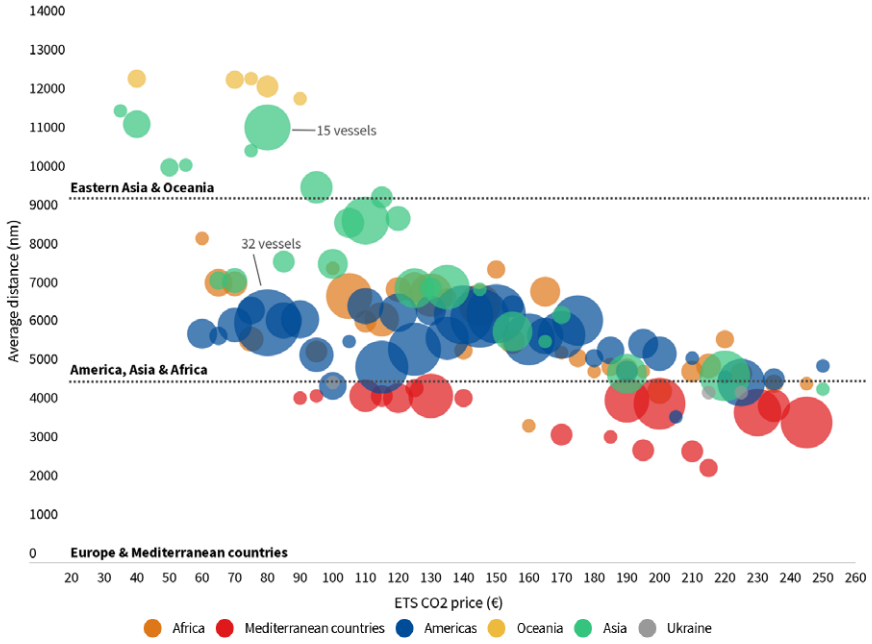
The study similarly did not take into account climate regulation outside Europe. The majority of IMO states have declared their intention to mandate zero-emission shipping by 2050. At the same time, both the UK and China have proposed to include shipping in their carbon pricing systems. This move adds to initiatives such as the Clydebank Declaration, where 22 countries gathered to declare their ambition to implement six green shipping corridors by 2030.

The unlikeness of a modal shift

Carbon leakage in its simplest form is unlikely to result from the EU ETS. Some organisations have suggested that carbon leakage could, nonetheless, occur in the form of modal shift. In the Baltic case, this means goods would be carried by sea to Ust-Luga before being transshipped onto trucks and carried back into the EU.



Note: The dotted line, shown for reference, represents the ETS penalty price of €100/tCO2 (€106 adjusted for annual inflation since 2013).



Note: The colors represent the origin or destination of the vessels calling at Baltic ports. The dotted lines indicate the span in sailing distance between these regions and the Baltics. The size of the bubbles indicates the number of vessels sailing from and to the Baltics that might find it financially attractive to evade at any given CO2 price.

While our study on carbon leakage in the Baltic Sea region did not look into this case, there are many reasons why this situation is unlikely. Firstly, ships carry three-quarters of external EU trade – owing to shipping's economies of scale, orders of magnitude higher than road transport. Secondly, there would be a significant increase in red tape, customs costs, and lead time by travelling to Russia to then re-enter the EU, instead of stopping directly at ports with much closer links to the European hinterland (this not even considering the heightened political tension between the Kremlin and the West in light of the conflict in Ukraine). Finally, the COM has proposed a separate ETS for road transport, so trucks will also have to pay for CO_2 costs under the ETS (in addition to fuel taxes paid at the petrol stations). A mix of these factors led the COM to label the risk of this leakage **"inexistent."**

It has also been suggested that a modal shift to rail may be incentivised. While this would not constitute carbon leakage, as rail is a greener mode of transport, the difference in rail gauge between Russia and central Europe makes this type of evasion unlikely, putting geography, bureaucracy, and customs to one side. And that's not to mention Ust-Luga's rail & road network directed eastwards to Moscow and the nearby regions with their factories, not the EU market.

Sound – but could be better

The above findings present some valuable lessons for decision-makers. The risk of carbon leakage is negligible for the EU ETS, meaning that the COM's current proposal – to monitor shipping statistics and propose instruments if and when evasion is found – is a sound approach.

Nonetheless, to assuage concerns, policymakers should **heed the calls from the European Sea Ports Organisation** to institute a full geographical scope EU ETS (to regulate 100% rather than half of the voyages between EU and non-EU ports) and consider extending the EU ETS' range to cover legs past European journeys, something that legal analysis has found **legally feasible**. It might solve the marginal evasion cases and ensure the EU ETS has the highest environmental ambition possible.

In summary, the EU ETS is a good proposal. Our analysis suggests that it will not result in carbon leakage in Europe, either in the form of port evasion or negative modal shift. Instead, it may finally chart the course to make green shipping a reality by incentivising energy efficiency improvements and generating revenue for investing in port infrastructure and instruments like Carbon Contracts for Difference to ultimately bridge the price gap between clean and dirty fuels.

Known for pioneering eco-friendly innovation, the Baltic sea shipping and port industries may as well start writing new, greener chapters, not worried about how to bite the EU ETS or carbon leakage bullets. ■

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