

The (critical) cost of carbon

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The International Maritime Organization (IMO) has set a bold objective for industry emission targets, among others, the ambition to get shipping to net-zero by 2050. However, many claim that the sector may only meet the deadline with proper financial incentives. While the push for a suitable market mechanism is clear, the construction of that mechanism – and its cost to shipping companies – remains uncertain.

The article delves into the potential introduction of a Carbon Intensity Indicator (CII) pricing mechanism. It compares various greenhouse gas (GHG) incentives and, leveraging proprietary calculations, speculates on their impacts and how companies can prepare for the change.

Financial incentives – needed

The maritime industry, responsible for a significant portion of global emissions, is at a pivotal point. Without some form of carbon pricing implemented, achieving climate goals and having a profitable fleet that runs on low- or zero-emission fuels will be difficult.

Debate is ongoing, so nothing is certain regarding a financial impact for CII – or its price tag. However, current emission reduction initiatives offer a glimpse into what the IMO might propose. For instance, the International Chamber of Shipping suggests a carbon price range of \$20 to 40 per tonne, whereas Maersk advocates for a more robust \$150/t tax. The

World Shipping Council's **Green Balance Mechanism** proposal aims to level the playing field between black and green fuels through a novel taxing and redistribution scheme.

Then we already have the European Union's Emissions Trading System (EU ETS), a pricing mechanism requiring ships (over 5,000 of gross tonnage) to purchase carbon offsets for a significant portion of their emissions. Vessels are financially responsible for 40% of carbon emissions between European ports in 2024, 70% next year, and 100% beyond 2025.

FuelEU Maritime is a new regulation adopted by the EU as part of its Fit for 55 package. It strives to boost the adoption of renewable and low-carbon fuels in the maritime industry to curb GHG emissions. This regulation establishes goals to decrease the GHG intensity of marine fuels progressively, starting at 2% in 2025 and aiming for an 80% reduction by mid-century. Importantly, this and other mandates are set to tighten over the coming years.

Carbon credits – a potential price breakdown

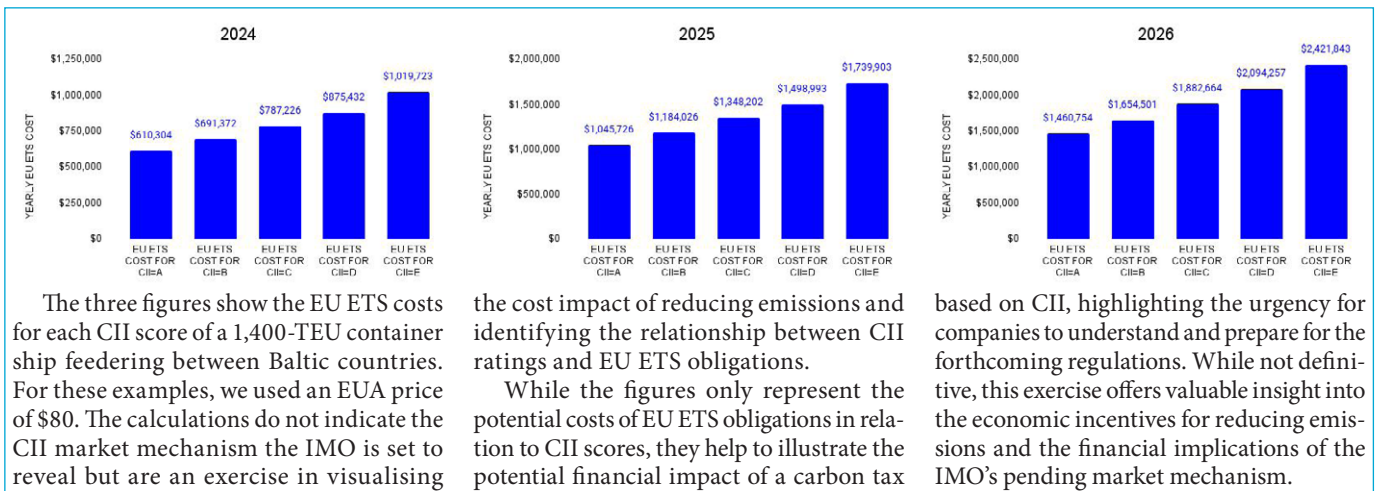
The Bearing AI platform can precisely forecast CII Ratings and EU ETS obligations. Our company has leveraged this capability to calculate the latter's price comparison to passing and failing CII scores of vessels operating exclusively in the European Economic Area to understand CII carbon costs.

Leveraging industry-leading artificial intelligence, we can accurately predict CII ratings and end-of-year EU ETS obligations for a vessel. Below, we have calculated theoretical CII ratings and EU ETS obligation costs – based on a price of \$80 per EU Allowance (EUA) – for a container ship with a nominal capacity of 1,400 TEUs operating on a feeder service.

Our calculations reveal a significant cost disparity based on CII ratings. A vessel failing to meet the required CII level (grades D-E) faces a considerably higher financial burden than those receiving a score of A. This discrepancy is projected to widen, with the difference between A and E ratings ballooning from \$409,414 this year to \$961,089 by 2026 and beyond.



Photo: Canva



The three figures show the EU ETS costs for each CII score of a 1,400-TEU container ship feeding between Baltic countries. For these examples, we used an EUA price of \$80. The calculations do not indicate the CII market mechanism the IMO is set to reveal but are an exercise in visualising

the cost impact of reducing emissions and identifying the relationship between CII ratings and EU ETS obligations.

While the figures only represent the potential costs of EU ETS obligations in relation to CII scores, they help to illustrate the potential financial impact of a carbon tax

based on CII, highlighting the urgency for companies to understand and prepare for the forthcoming regulations. While not definitive, this exercise offers valuable insight into the economic incentives for reducing emissions and the financial implications of the IMO's pending market mechanism.

Don't get yourself caught unguarded by the price tag

No matter the cost of the CII market mechanism, one thing is certain – it's not here (yet!). That said, the key to mitigating future financial risks lies in preparation and the early adoption of green technologies and practices – the sooner companies begin preparations, the better.

Businesses that seize on tools to reduce emissions proactively – like Bearing AI's emission optimisation suite – can steer their course toward compliance and sharpen their competitive edge. Such solutions offer an opportunity to keep tabs on emissions,

managing and limiting them actively, as well as anticipating regulatory changes and steering a course towards adherence and advantage in an industry landscape that is nothing but shifting rapidly.

The push for a tangibly more sustainable maritime industry is here to stay, with

financial incentives playing a pivotal role in accelerating the transition toward net-zero emissions. While the exact structure and impact of the IMO's potential CII pricing mechanism remain speculative, the direction is in plain sight: the cost of carbon will be a critical factor in shipping economics. ■



Bearing is at the forefront of bringing AI to maritime shipping. This is a trillion dollar industry that moves 90% of the goods we interact with on a daily basis, but has traditionally lagged far behind other industries in adopting new technologies. At Bearing, we're changing that. We're building AI-enabled products that solve the shipping industry's biggest pain points and we already have some of the world's biggest shippers as our partners. Go to bearing.ai to learn more.