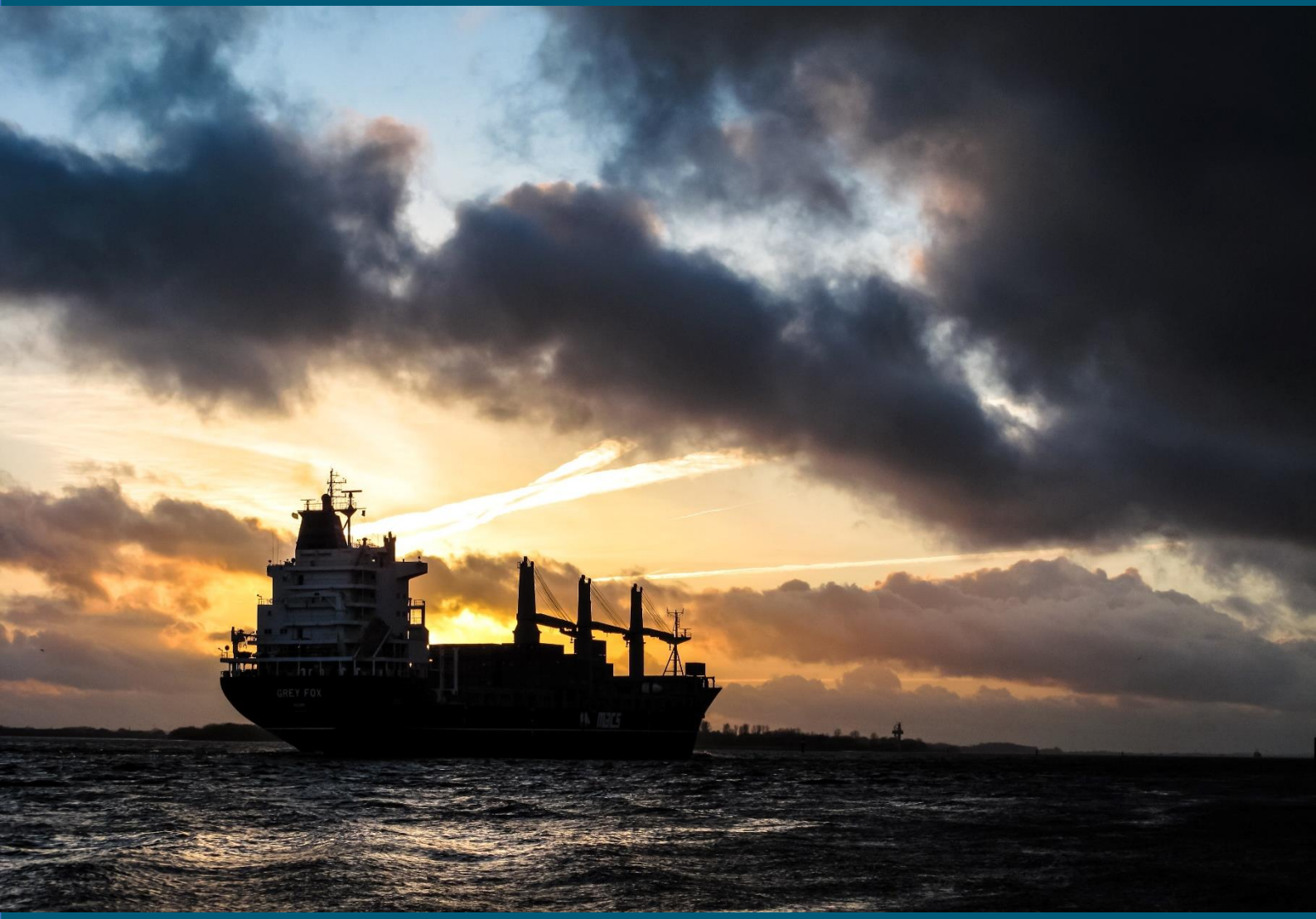
Shipping in the EU ETS:

Implications and recommendations for ship operators



EU carbon compliance – navigating through stormy waters

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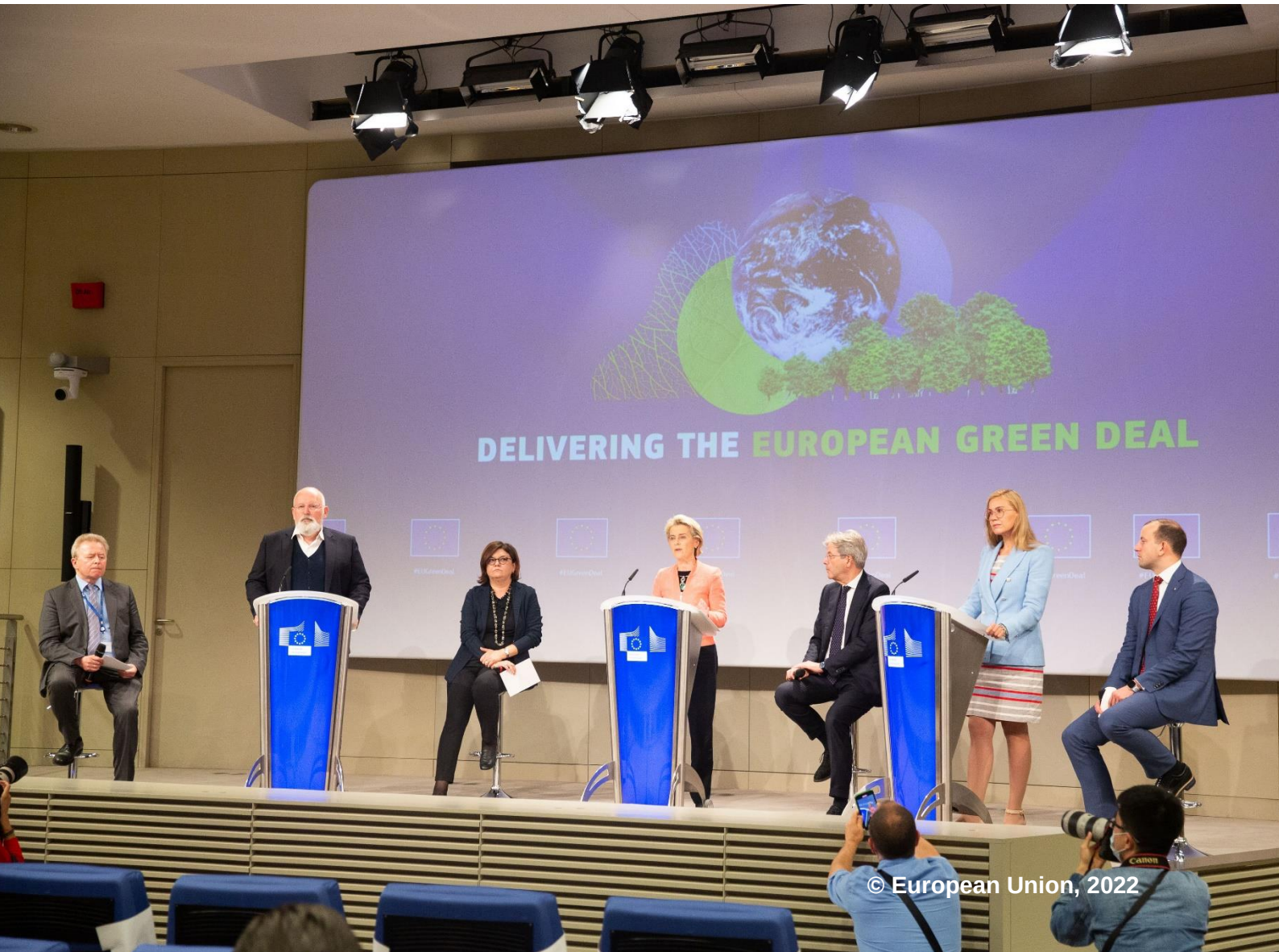
Introduction: Shipping to be Included in EU ETS

In July 2021 the European Commission presented the Fit for 55 package. The goal of this package is to reduce the carbon emissions in 2030 by at least 55% compared to 1990 levels. Part of this package is a revision of the EU Emissions Trading System (EU ETS). This revision includes the maritime sector in EU ETS and it is the first of multiple packages affecting the maritime sector. Since June 2022, the revision is in trilogue where it is negotiated between the Parliament, the Council and the Commission.

Impactful changes expected

The EU ETS has existed for a while, but what started as a powerless mechanism is now showing its teeth. Although the details of the revision may still change during trilogue, there is consensus on the majority of points and it is evident that it will impact ship operators and charterers significantly. As the price of the emission rights are only expected to rise further, a good understanding of the system and its impact can be helpful.

This document elaborates on the proposed changes to the EU ETS with a focus on the expansion to the maritime sector. Both the implementation and impact of the regulation are discussed as well as different options for compliance.



The EU Emission Trading System Explained

The EU ETS was the first emissions trading scheme in the world and was launched already in 2005. It still represents the world's largest carbon market.

Companies that fall under the regulation need to cover their direct CO_2 emissions (scope 1) by so-called EU allowances (EUAs). For one EUA, a company can emit one ton of CO_2. EUAs can be acquired and traded under a "cap and trade" principle. This means that the EUAs available in the market are capped. To support the reduction of CO_2 emissions, the cap is reduced every year by a predefined factor.

Companies can decide their own compliance strategy: investing in clean technology or clean fuels, buying EUAs or a combination of those.

Under the current scheme, companies that are sensitive to carbon leakage (i.e. the relocation of industrial activities to other countries with less stringent climate regulation) receive free EUAs on a yearly basis that cover a part of their emissions.

Changes proposed by 'Fit-for-55'

It is proposed to phase-out the free EUAs and to implement a carbon border tax instead. This should level the international playing field through a carbon tax on imported products from carbon intensive industries. This changes the system from a "carbon subsidy" on domestic products to a carbon tax on foreign products.

Another revision is the increase of the cap's reduction factor from 2,2% to at least 4,2% per year. As a result, the maximum allowed EUAs in the market will have decreased by more than 60% in 2030 compared to 2004 levels. This factor is one of the discussion points as the Parliament proposes a more ambitious factor.

Furthermore, it is proposed to extend the system to new sectors which includes shipping. This is further explained on the next pages.

All measures reduce the number of EUAs in the market. Depending on the pace in which companies take decarbonization measures, the price level of EUAs will be impacted

Invest in cleaner fuel technology or buy CO_2 allowances

EU ETS: Increased Impact

For a long time, the system appeared to be ineffective as there were too many allowances available and demand was low due to the financial crises. This resulted in prices between €4 and €9 per ton of CO_2 emissions.

After introducing adjustment mechanisms, EU ETS started to become more effective in 2018 with prices around €25 per ton. Over the past two years, prices dramatically increased with a peak of almost €100 per ton in February 2022. As the price levels are impacted by many different factors, future levels are difficult to predict. Yet, even higher prices are expected implying an increasing impact for ETS-covered companies.

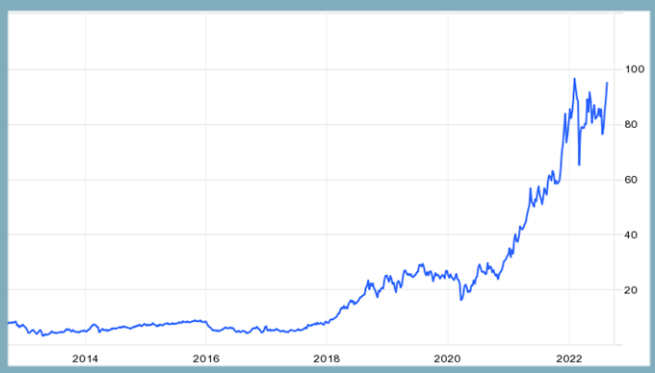


Figure 1: Price increase CO_2 allowances

Proposed Implementation in Shipping

At the time of the writing of this paper (August, 2022), the status of the revision plan is to include vessels above 5000 gross tonnage in the EU ETS from the start. From 2027, vessels above 400 gross tonnage will be included. The timing of the implementation is still unclear as the Council aims for a three year phase-in period starting in 2023 while the Parliament proposes a full implementation in 2024. In any case the commercial operator or charterer of the vessel will be responsible for the costs of obtaining sufficient allowances.

EU ETS in the maritime sector will include 100% of the emissions in and between EU ports. In addition, it will include 50% of the emissions from voyages between EU and non-EU ports. The Parliament proposes to increase the percentage for voyages between EU and non-EU ports to 100% in 2027. Only when the emissions of such a voyage are covered by a similar system by the International Maritime Organization (IMO) or the state of the non-EU port, the percentage is reduced back to 50% of the emissions.

The emissions will be monitored through the EU Regulation on the monitoring, reporting and verification of CO_2 emissions (MRV regulation). The EU MRV will be extended to include other greenhouse gases, like methane (CH_4) and nitrous oxide (N_2O). The timing of this extension is not yet clear but it will most likely be between 2025 and 2027.

The maritime sector will not have any free allowances. So, for every ton of CO_2-equivalent emissions under the scope of EU ETS, EUAs will have to be surrendered. With the increasing EUA prices this will have a significant impact on the costs of operating the vessel.

As for all sectors, there are two options to comply: buy EUAs or eliminate emissions. Strategies to eliminate emissions are to decrease fuel consumption or to use low carbon or renewable fuels. Although both strategies are important, other future regulations such as the proposed FuelEU Maritime focus solely on the shift to low carbon or renewable fuels. These regulations are expected to come into effect after 2025.

The Impact of ETS for Ship Operators Quantified

The calculation steps and impact are shown for an example of an 18.000 gross tonnage tanker when the EU ETS for shipping is fully implemented.

1.

Depending on the voyage, the number of allowances required is multiplied by:
A) 100% for voyages between EU ports or consumption at berth in EU ports
B) 50% for voyages between EU and non-EU ports
C) 0% for travel between non-EU ports.

Example: An 18.000 gross ton tanker consumes 3.000 tons Diesel/Gas Oil per year. 80% of the fuel is consumed for navigation in or between EU ports and 20% is consumed between EU and non-EU ports.

2.

The amount of fuel consumed is multiplied by a fuel specific emission factor to obtain the emissions. In time this will be extended with CH_4, N_2O and other non-CO_2 greenhouse gasses. The emissions are multiplied by the voyage factor from step 1.

Voyage: A) 3.000 * 80% * 3,206 * 100% ≈ 7.700 ton CO_2

B) 3.000 * 20% * 3,206 * 50% ≈ 950 ton CO_2

Total emissions: 7.700 + 950 = 8.650 ton CO_2

EU ETS/MRV emission factors for CO_2

Fuel type	MRV emission factors in tons of CO_2/ton fuel
Heavy Fuel Oil	3,114
Light Fuel Oil	3,151
Diesel/Gas Oil	3,206
Liquefied Natural Gas	2,750
Biofuel/E-Fuel	0,000

3.

To calculate the impact, the emissions need to be multiplied by the price of the allowances.

Example: For an EUA price of €100 the impact is: 8.650 ton CO_2 * €100 = €865.000,-. This is an indication of the yearly EU ETS compliance costs after the phase-in period for a vessel. This calculation only takes into account CO_2 emissions. Other emissions like N_2O or CH_4 could further increase the costs of EU ETS, but the exact calculation method is not yet known.

The table below shows the EU ETS price in euro per ton of fuel for different fuels and different EUA prices. This does not include emissions other than CO_2 emissions.

	Allowance price EUR/ton CO_2		
Fuel type	**€ 50**	**€ 100**	**€ 150**
Heavy Fuel Oil	€ 156	€ 311	€ 467
Light Fuel Oil	€ 158	€ 315	€ 473
Diesel/Gas Oil	€ 160	€ 321	€ 481
Liquefied Natural Gas	€ 138	€ 275	€ 413
Truly Sustainable Fuels	€ -	€ -	€ -

Conclusion & Recommendations

The new plan of the European Commission to include the maritime sector in the EU-ETS as part of the Fit-for-55 package has a significant impact on the ship operator:

1. Using fossil fuels will become more expensive.
2. There is a rising trend seen in the cost of emitting a ton of CO_2 under the EU ETS.
3. Other regulations will continue to pressure emissions in shipping.

The exact details of the proposal may still change during trilogue. However, it is evident that the maritime sector will be included in the EU ETS and that other regulations to reduce emissions in the maritime sector are coming soon.

Investing in your future

The EU ETS will have a significant impact on the costs of using fossil fuels. It is therefore important to start devising your decarbonization and carbon compliance strategy today. For your short- to medium-term strategy, try to answer relevant questions like:

- Is there already a proper low/zero carbon fuel alternative available for your vessels?
- How do additional costs for low carbon fuels compare to additional costs for obtaining EUAs?
- Which investments in vessels enable the use of low/zero carbon fuels are becoming cost-effective now?

You could also consider to already start forward purchasing biofuels and EUAs now. This way you can build understanding of those new markets, build positions and hedge against future price jumps. EUAs do not expire and there is an actively traded forward market.

Reducing emissions is more attractive than ever. The cost of obtaining EUAs should be included in every business case with regards to fuel consumption and fuel selection. Just reconsider the green investments you have assessed in the past, chances are the business case has improved dramatically.

Our advice

Start preparing your EU ETS compliance and fuel strategy now

Why act now?

In the coming months, the final shape of the EU ETS revision and the rest of the Fit for 55 package will become clear. By starting to devise your strategy now, you are ready for what is coming and you will not be surprised.

Every shift in regulation is both a risk and an opportunity. With the right strategy this is the chance to get ahead of your competition. We can help you to get up to speed with EU ETS and build a compliance portfolio that matches your strategy.

About

Author & Director Renewable Fuels Caspar Gooren

Caspar's mission: to accelerate the transition to a sustainable energy future by making 'green' more attractive than 'grey'.

Caspar has 15 years of experience in the renewable energy markets. At European energy companies, energy trader, various energy scale-ups, and now with great pleasure at Titan.

CEO Niels den Nijs

Niels founded Titan in 2012 with the mission to decarbonize marine fuels and to reduce local pollutive emissions.

Niels has over 20 years of experience in the energy sector. Trading and managing energy and fuel portfolios at energy and industrial companies.

About Titan

Titan has been a leading supplier of liquefied natural gas (LNG) and liquefied biomethane (LBM) since 2012 when it was established in Amsterdam. Titan specialises in providing shipping customers with end-to-end clean fuel solutions. This includes project planning, supply and delivery, as well as risk management and hedging services to mitigate price fluctuations. As an independent company, Titan can work with other suppliers of low carbon and carbon neutral marine fuels to enable reliable availability and supply anywhere in the world.

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