



Fuel EU Maritime, EU ETS and bunker tax proposals – overview and questions

*A summary of the key elements of proposed EU policy instruments
and the impact they may have on marine fuel markets globally*

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Introduction

The European Commission has announced a comprehensive and interconnected set of proposals containing several elements aimed specifically at reducing greenhouse gas emissions from shipping, and in particular measures to encourage uptake of less GHG-intensive marine fuels. The 'Fit for 55' package of proposals, announced on 14 July, is aimed at reducing the European Union's net greenhouse gas emissions by at least 55% by 2030, compared to a 1990 baseline.

The far-reaching proposals need to be negotiated with the European Parliament and EU member states before they can be adopted. The Commission says many details are likely to change before the reforms are adopted.

IBIA has studied the proposals in a bid to understand the various aspects and the impact they may have on the marine fuels sector. It is clear that a lot of thought has gone into avoiding "carbon leakage" to ensure the measures will be effective and not create an uneven playing field.

However, questions remain about how this will work in practice, whether there will be significant negative consequences for some bunker markets, and if it will be effective in reducing GHG emissions from shipping. One thing is certain: the regulatory framework will increase complexity for shipping companies. Moreover, the proposal for documenting the GHG intensity of fuels on the

bunker delivery note (BDN) needs to be understood by marine fuel suppliers not just in the EU, but globally.

Key elements of the EU maritime proposals

The 'Fit for 55' package aims to apply “various complementary policy instruments” to motivate technology development and use of sustainably produced renewable and low-carbon fuels by 2030 in all sectors, including maritime, “to prepare for much more rapid change thereafter”. The package of 13 proposals has thousands of pages forming a complex web of measures. The four with most direct impact on the maritime sector and bunkering are:

- FuelEU Maritime
- EU ETS
- Energy Taxation Directive
- Regulation on the deployment of alternative fuels infrastructure

Together, these aim to stimulate uptake and supply of renewable and low-carbon fuels (RLF) for ships arriving at and departing from EU ports, including from countries outside the EU. The measures are carefully designed to prevent “carbon leakage” - recognising that the international nature of shipping could easily cause ships to evade EU-specific fuel taxes, fees and GHG intensity requirements by bunkering outside the EU.

FuelEU Maritime	EU ETS	Energy Taxation Directive (ETD)	Alternative fuels infrastructure (AFI)
<p>Aims to incentivise uptake of renewable and low-carbon fuel (RLF) by setting increasingly strict limits on GHG intensity of fuels used from 2025 onwards.</p> <p>GHG intensity of alternative fuels to be certified and BDN to show lifecycle GHG emission factor.</p>	<p>Ships of 5,000 GT and above to be included in the EU cap & trade system for annual CO2 emissions.</p> <p>Ships will have to buy CO2 allowances, starting at 20% of emissions in 2023, rising to 45% in 2024, 70% in 2025 and 100% in 2026.</p>	<p>Bunker fuels sold within and for use within the EEA no longer exempt from tax. Rate will be low compared to other sectors to prevent carbon leakage.</p> <p>Minimum tax rates: HFO/MGO €0.9 per GJ from 2023 (approx. €38/\$45 pmt) LNG/ LPG €0.6 from 2023, rising to €0.9 in 2033</p>	<p>Sets requirements for adequate LNG bunkering infrastructure at core ports by 2025, and minimum electric shoreside power supply for container and passenger ships by 2030.</p> <p>Member States to submit deployment plans for alternative fuels infrastructure.</p>

Scope of the EU proposals

Maritime transport accounts for around 75% of EU external trade and 31% of EU internal trade in terms of volume, according to the Commission. It says ship traffic to or from ports in the **European Economic Area (EEA)** accounts for some 11% of all EU CO₂ emissions from transport and 3-4% of total EU CO₂ emissions.

The EC proposals regarding the GHG intensity and inclusion in the EU ETS applies to ships above a gross tonnage of 5000, regardless of their flag. This **is in line with the EU Monitoring, Reporting and Verification Regulation (MRV)** which established the system to monitor and report CO₂ emissions from ships above 5,000 gross tonnes sailing to or from ports of the EEA. Even though ships above 5000 gross tonnage represent only approximately 55% of all ships calling at EEA ports, it is estimated that they are responsible for 90% of the carbon dioxide (CO₂) emissions from the maritime sector.

The limit on GHG intensity under the FuelEU Maritime and the EU ETS proposals will apply to energy used during a ship's stay within a port of call in the EEA, the entirety of the energy used on intra-EEA voyages, and half of the energy used on voyages arriving at or departing from EEA ports from/to other countries.

It is worth noting that the EU MRV contains methods for calculating CO₂ emissions which rely on applying CO₂ emission factors to data on fuel consumption. The MRV already contains default values for emission factors of fuels other than the traditional liquid marine fuels (such as Liquefied Petroleum Gas, LNG, methanol and ethanol) and it provides that *“appropriate emission factors shall be applied for biofuels, alternative non-fossil fuels and other fuels for which no default values are specified”*.

Regarding the provision of LNG bunkering infrastructure, the Commission says it is likely that 71 out of 90 TEN-T core ports will have LNG bunkering available by 2025, which ensures that the objective is met.

From January 2030, containerships and passenger ships at EEA ports will have to connect to onshore power supply (OPS) and *“use it for all energy needs while at berth”* to prevent local air pollution, unless they can demonstrate the same emission reduction by means of an alternative technology such as batteries.

There is also a requirement for Member States to submit, by 2024, a deployment plan for alternative fuels infrastructure in maritime ports other than for LNG and shore-side electricity supply for use by sea going vessels, in particular for hydrogen, ammonia and electricity. Unlike for LNG and OPS, there is no minimum requirement.

Introducing tax on marine fuels

Globally, marine fuels are typically exempt from duty when sold to ships for international use; while fuels for domestic use are subject to duties set by individual countries. The proposal put forward by the Commission intends to remove tax exemptions on aviation and marine fuels by updating the EU Energy Taxation Directive (EDT).

Starting in 2023, it would impose a minimum tax rate for heavy fuel oil and marine gasoil (HFO/MGO) as well as LNG/LPG while “sustainable and alternative fuels” would benefit from zero tax rates in the first 10 years.

Proposed minimum tax rates from 2023:

HFO/MGO €0.9 per gigajoule (GJ)

LNG/LPG €0.6 per GJ from 2023 rising to €0.9 per GJ in 2033.

According to the modelling done for the impact assessment, intra-EU transport will represent approximately 16% of all fuel use in the waterborne transport sector in 2030.

The taxes would apply to marine fuels sold and used within the EEA. Member States would retain their freedom to exempt fuels sold for use beyond the EEA, or apply the same level of tax as they do for intra-EEA navigation.

The proposal indicates that, to be entitled to tax-free bunkering in the EEA, vessels would have to justify the need to have access to tax exempt fuel. Eligibility for tax-free bunkering would have to be proved by producing the relevant customs documents indicating the next port of call that is located outside the EEA.

Potential Impact of taxing marine fuels sold in the EU

The proposed tax on marine fuels in the EU EDT is just 12% of what other sectors that use fossil fuels will be charged. The Commission says this is in recognition of the carbon leakage risk, as ships operating internationally can easily take enough fuels outside the EEA to cover their needs while navigating between EEA ports.

The question is, will this rate of tax cause a shift in demand away from bunker suppliers located in EEA ports to other markets?

Approximate conversion factors say one tonne of HFO equals around 42 GJ, which would put the tax on HFO sold and used in the EEA at almost €38 per tonne, or \$45 per tonne at current exchange rates.

That price difference would make bunker prices in EEA ports less competitive with other options, potentially eliminating current price advantages of taking bunkers in EEA ports. Moreover, this could make it attractive for ships operating chiefly within the EEA to visit nearby non-EEA ports to take bunkers if the price difference favours it. Ports close to EEA waters offering a competitive bunker-only option might benefit.

However, bearing in mind that most ship operators prefer to lift bunkers concurrent with cargo operations and deviations are costly, the incentive for EEA operators to look outside their normal bunkering ports will be limited. And as long as bunker sales to ships on international journeys remain exempt, those sales should not be affected.

Will it happen? Unlike the other parts of the “Fit for 55” package, this will not be negotiated with the European Parliament; it requires all Member States to agree for a new EU ETD to enter into force. Unanimous agreement might prove difficult.

FuelEU Maritime – introducing GHG intensity limits on marine energy

This is a new GHG policy concept, but it may work in a similar way as we have seen with both regional and global marine fuel sulphur limits. It could introduce new demands on both users and suppliers of marine energy globally in a bid to overcome the “chicken and egg” obstacle for wider market penetration of renewable and low-carbon fuels (RLF) for shipping.

Unlike the 2030 target in the IMO’s initial GHG strategy, which sets a 40% reduction target for carbon intensity of international maritime transport (CO₂ emissions per transport work), the FuelEU Maritime proposal sets increasingly strict limits on the carbon intensity of the fuel itself, on a well-to-wake basis.

This regulation would require the yearly average GHG intensity of the energy used on-board by a ship to be reduced every five years, starting from 2025, compared to a 2020 reference value, as follows:

- -2% from 1 January 2025;
- -6% from 1 January 2030;
- -13% from 1 January 2035;
- -26% from 1 January 2040;
- -59% from 1 January 2045;
- -75% from 1 January 2050

While departing from the IMO’s regulatory approach in reducing the carbon intensity of maritime transport, the proposal is similar in that it is goal-based and technologically neutral; it does not prescribe any particular fuel or technology.

The complex part for the industry as a whole is understanding how this is going to work, both for those buying marine fuels and those selling it.

How will the GHG intensity limits work?

According to the FuelEU Maritime proposal, this Regulation should establish the methodology and the formula to calculate the yearly average GHG intensity of the energy used on-board by a ship. This formula should be based on the fuel consumption reported by ships and consider the relevant emission factors of these fuels, similar to the current EU MRV regulation.

The GHG performance of fuels should be assessed on a well-to-wake basis, taking into account the impacts of energy production, transport, distribution and use on-board. The intention is to stimulate technologies and production pathways that provide a lower GHG footprint and real benefits compared to the existing conventional fuels.

The well-to-wake performance of renewable and low-carbon fuels should be established using default or actual and certified emission factors covering the well-to-tank and tank-to-wake emissions. The performance of fossil fuels should be assessed through the use of default emission factors (as already seen in the EU MRV regulation).

The proposal envisages a comprehensive approach to promote the use of energy sources providing a lower GHG footprint overall, also known as a lifecycle approach. It says the limit should be expressed in terms of 'CO₂ equivalent (CO₂e)' in order to reflect the global warming potential of methane and nitrous oxides as well as CO₂.

Responsibilities and impact on fuel users and sellers

The responsibility for complying with the new regulation will be with shipping companies, essentially extending the reporting of annual CO₂e emissions under the EU MRV regulation.

For the part of operations affected by the EU regulation, shipping companies will be required to record the well-to-wake emission factors for each type of fuel consumed at berth and at sea, broken down by well-to-tank, tank-to-wake and fugitive emissions, covering all relevant greenhouse gases.

Accredited verifiers will be required to ensure the accuracy and completeness of the monitoring and reporting by companies. The proposal says verifiers should be independent and competent legal entities and should be accredited by national accreditation bodies.

An important element of the proposal is the option to pool ships from different companies, provided ships in the pool are verified by the same verifier. This allows for 'over-achievers' within the pool to voluntarily exchange "excess compliance points" with less performant ships/operators, provided that the minimum targets are met on average.

CO₂e factors for tank to wake (TtW) emissions of various fuels are provided in an annex to the proposal. For fossil fuels, these are the same as in the MRV Regulation. Emission factors are given for other fuels, such as bio liquids, bio-gases and e-Fuels. There is an option for the TtW values to be certified by laboratory testing or direct emissions measurements.

The method for determining well to tank (WtT) GHG factors for non-fossil fuels, meanwhile, are more complex. These could be "default values" based on Directive (EU) 2018/2001 – the **Renewable Energy Directive (RED II)**.

Certification of fuels is essential to achieve the objectives and guarantee the environmental integrity of the renewable and low-carbon fuels that are expected to be deployed in the maritime sector. The proposal says the certification of biofuels, biogas, renewable fuels of non-biological origin and recycled carbon fuel should rely on the rules established by RED II, and that this approach of certification should also apply to fuels bunkered outside the Union.

CO₂eq values as provided in RED II (without combustion) can be used for all fuels whose pathways are included in RED II. Alternatively, a RED II approved certification scheme can be used for WtT emissions.

Wherever values for non-fossil fuels are used that are different from the default values established in RED II, it says these "shall be based on relevant Bunker Delivery Notes (BDNs)".

This is where the regulation has the potential to impact marine fuel suppliers globally, as it states:

For the purposes of this regulation, relevant BDNs of fuels used on board shall contain at least the following information:

- product identification*
- fuel mass [t]*
- fuel volume [m³]*
- fuel density [kg/m³]*
- WtT GHG emission factor for CO₂ (carbon factor) [gCO₂/gFuel] and for CO_{2eq} [gCO_{2eq}/gFuel] and related certificate.*
- Lower Calorific Value [MJ/g]*

A footnote says the WtT GHG value is not required in case of fossil fuels. However, for all other fuels, including blends of fossil fuels, this value should be made available together with a separate certificate identifying the fuel production pathway. Presumably this alludes to blends of fossil fuels with non-fossil fuels.

Certifying the WtT CO_{2e} value and the production pathway could be very complex, as it is quite likely that new alternative fuels – just like today’s oil-based fuels – will be blends of components from different producers and production methods.

It seems that any marine fuel supplier anywhere in the world that wants to be able to provide renewable or low-carbon fuels for ships heading to a port covered by the EU regulation would need to provide this information in the BDN, along with a separate certificate identifying the fuel production pathway.

Criticism and questions about the GHG intensity limit

Shipping industry representatives have objected to the FuelEU approach because it puts the onus on shipping companies to comply and to source compliant fuels; arguing that requirement should be put on marine fuel suppliers to make renewable and low carbon fuels available.

While this is entirely understandable, the Commission’s proposal makes it clear that it has placed the responsibility on the energy consumers in order to create demand which might otherwise not materialise.

There is a parallel here to sulphur limits; it has always been up to ships to comply. There is no obligation on suppliers to provide low sulphur fuels, only to meet the sulphur limit if they choose to provide such fuels. As market demand for 0.10% sulphur fuel grew in response to EU at-berth requirements for ships since 2010, and for ships operating in emission control areas since 2015, the supply side stepped up. In fact, since 2010, global supply of marine gasoil (MGO) tilted toward maximum 0.10% sulphur fuel, and since 2015 it has been heavily dominated by fuels meeting the 0.10% sulphur limit.

We saw the same in the run-up to the 0.50% sulphur limit applying globally outside ECAs in 2020: the supply side was waiting for a clear signal from shipping companies as to which fuels they wanted, where they wanted to buy them, and when. Options for compliance included distillates

(MGO), very low sulphur fuel oil (VLSFO) blends or high sulphur fuel oil with scrubbers. Bunker suppliers who were early to market with VLSFO – which they bet most shipping companies would choose due to costing less than MGO – were frustrated by a lack of demand as most of the shipping industry held off shifting to lower sulphur fuels for as long as possible.

Another criticism levelled at the FuelEU proposals is potential overreliance on biofuels, which can have questionable sustainability credentials.

There are good reasons for this as biofuels are currently the only fuels that can be used without major adjustments to the fuel systems on ships using conventional fuels, which is still the vast majority of the global fleet.

The proposal shows strong awareness of this and has mechanisms to address it.

It sets out criteria to ensure that biofuels and biogas that are produced from food and feed crops, as well as renewable fuels of non-biological origin and recycled carbon fuels that do not comply with GHG emission savings set out in RED II “shall be considered to have the same emission factors as the least favourable fossil fuel pathway for this type of fuels”. Exactly how this is certified is reliant on methodology determined by the EU. Exactly how to certify fuels that are sold outside the EU is not very clear.

Another aspect that can counterbalance overreliance on liquid biofuels is the pooling option; this could make ships using certified low GHG intensity alternative fuels very attractive as pool partners for shipping companies that struggle to meet the GHG intensity limit.

The question does remain, however, just how effective the proposal can be in promoting more demand – and hence supply – of truly sustainable low GHG intensity fuels, at least in the first five to 10 years. The initial 2% and then 6% GHG intensity improvement requirement may, at best, help establish a niche market for alternative fuels, most likely in Europe, and help reward early movers by taking part in the pooling mechanism. Indeed, this may be a good incentive and offer some early return on investment for those operators who undertake trials to gain experience with alternative fuels like ammonia.

Will inclusion of shipping in EU ETS have any impact on the marine fuels market?

There are two main potential impacts on the marine fuels market from extending the EU ETS to maritime transport; one being the extent to which this price signal incentivises uptake of alternative low-carbon fuels, and the other the extent to which it causes ships to change their trading patterns to reduce their exposure to the EU ETS.

The Commission says this proposal forms part of the package of measures to create a clear price signal that would make energy efficiency investments more cost-effective, encouraging ships to use less fuels. It would also reduce the price differential between alternative fuels and traditional marine fuels and hence support their deployment. As such, this would reinforce the goals of the FuelEU Maritime initiative.

According to an impact assessment, it would take a relatively high carbon price in the ETS to stimulate uptake of alternative fuels; the proposal suggests an ETS price in the range €45/tCO₂

would improve the cost competitiveness of alternative fuels compared to fossil fuels but it would not be sufficient to bridge the whole price gap.

Currently observed carbon market prices vary between €40 and €55. Future carbon prices are by nature uncertain and impacted by policy choices and market developments. The policy scenarios modelled for the period 2026 to 2030 project average carbon price ranges between €45 and €70, with projected carbon prices in the year 2030 ranging between €50 and €85.

The average of short-term forecasts of different carbon market analysts of April 2021 suggested that the EU ETS carbon price would average €45 from 2021 to 2025, rising to €55 for the period 2026 to 2030.

If the carbon prices are as projected above, the ability to drive a shift to alternative fuels would be quite limited, bearing in mind that moving to alternative fuels is not just about the price gap and availability, it is also about the technical feasibility of alternative fuels, regulatory safety standards and the level of investments needed to use them. Only ships with dual fuel or multi-fuel engines and fuel systems can readily switch between traditional liquid oil-based fuels and other fuel types such as bio-LNG or sustainably produced methanol, for example. The lowest technical barrier would be for liquid biofuels and biofuel blends.

The ETS could potentially cause changes in trading patterns, for example making it attractive to use non-EU ports as transshipment centres for ships above the 5,000 GT threshold and use ships below the 5,000 GT threshold for the EU ETS for onward transport into EEA ports. Moreover, if ships above 5,000 GT were used for onward cargo transport from transshipment ports close to EEA destinations, it would reduce the length of the voyage they would need to buy ETS allowances for.

The EU ETS proposal has assessed the potential for evasion, which becomes lucrative when the cost of compliance exceeds the costs associated with the evasive port call (i.e. additional port, fuel, operational, administrative and opportunity costs).

Its assessment estimates that with a carbon price of €60 per tCO₂, the share of voyages tempted to evade is between 0.1% and 10%. At an ETS price of around €100/tCO₂, the risk of evasion would concern 20% of the voyages that could be tempted to evade if third country climate policies stay the same.

It notes, however, that the EU maritime transport MRV regulation already requires ships to load or unload cargo in order for the stop to fall under the port call definition. This stringent definition represents an important additional barrier to evasion and could be strengthened to further mitigate the risk, it says.

The above requirement would prevent 'bunker only calls' being counted as a port call, so that stopping for bunkers only en route between the Far East and Europe, for example, would not allow the ship to cut the share of fuel (50% of the total from the last port outside the EEA) that would be subject to the EU ETS.

The risk of evasion would be cancelled if the main departure or arrival countries outside the EEA would apply similar carbon pricing policies.

Many questions

As mentioned at the outset, it is clear that a lot of thought has gone into ensuring the proposal measures will be effective, avoid “carbon leakage” and not create an uneven playing field. Nevertheless, various aspects of the proposals have been criticised by shipping industry and environmental organisations.

Without prejudice, we think the proposals raise many questions, including:

- *What is the impact on bunkering in EU ports?*
- *What is the impact on bunkering in ports outside EU?*
- *Alternative fuel origins (production pathway) is critical and it can be complex - how can it be proven?*
- *Exactly how can suppliers document the WtT emission of alternative fuels, and how can that be certified?*
- *Are the EU standards for measuring lifecycle GHG intensity the right ones, and can they be adopted globally?*
- *Will it send the right signals to achieve a longer term shift to truly sustainable forms of energy?*
- *Is there room for carbon capture and storage in the EU proposals?*
- *Will it lead to changes in trading patterns, for example transshipment hubs outside EEA?*
- *Will it lead to quicker decarbonization of international shipping than already adopted IMO instruments?*
- *Will it hinder or accelerate progress on further GHG reduction measures at the IMO?*
- *Could it be seen as an experiment the IMO can learn from?*
- *Will IMO safety regulations and commercial fuel quality standards be developed in time to ensure that alternative fuels and energy sources are safe and fit for purpose?*

The answer to many of those questions will be coloured by opinions, some will be predictions, while some should be clarified in the process and negotiations that lie ahead before any of the proposals are adopted. As the Commission said; many details are likely to change before the reforms are adopted.

IBIA will invite our members to share views and concerns about the “Fit for 55” proposals to gauge their potential impact and appropriate responses.