



POSITION PAPER

# Breaking the eFuel Bottleneck: A Policy blueprint for advancing the maritime eFuel supply chain

January 2026

## BREAKING THE EFUEL BOTTLENECK: A POLICY BLUEPRINT FOR MARITIME SUPPLY CHAIN ACCELERATION

Since the introduction of the *Fit for 55* package, **maritime transport has undergone profound transformation**. An entire value chain has been bootstrapped into existence: engine manufacturers developing systems for alternative-fuel propulsion; ports investing heavily in bunkering infrastructure and storage for new energy carriers; shipyards specializing in vessels designed for alternative fuels; technology suppliers delivering onboard equipment capable of net-carbon-neutral operations; and classification societies integrating these innovations into their audits. Together, these developments have driven a substantial rise in orders for vessels capable of running on alternative fuels – with 50 % of all tonnage ordered in 2024 featuring alternative fuel-enabled propulsion.<sup>1</sup> Already, the liner fleet includes no less than 200 vessels with potential to run on renewable fuels and 79 % of deadweight tonnage of the existing orderbook is alternative-fuel capable.<sup>2</sup>

**Yet alternative-fuel capability does not guarantee that these vessels will operate on renewable fuels.** For that to happen, the **fuel supply chain must keep pace and deliver sufficient volumes to market**. Although more than 300 eFuel projects have been identified globally, final investment decisions (FIDs) remain scarce due to weak market signals and regulatory uncertainty. In fact, as the IEA's global hydrogen review indicates that only 4 % of announced renewable hydrogen production capacity has reached FID<sup>3</sup> and in a separate report on eFuels and transport decarbonization, that only 1 % of projects specifically targeting fuel applications have obtained FID<sup>4</sup>. Inevitably, **the lack of final investment decisions translates into insufficient volumes being available when needed, despite eFuels being a primary scalable pathway to deep decarbonization for most of the global fleet.**<sup>5</sup> In fact, of the 13.7 million tons needed to achieve only the IMO's 5 % GHG reduction target by 2030, shipping eFuel commitments can only supply about 1.07 million tons to market under the current situation.<sup>6</sup> In order to bring FID rates up, **the inherent bankability of eFuel needs to be addressed to lower risk, unlock capital and allow producers to leverage the economies of scale to lower production costs.** Investment certainly comes only with **political clarity concerning the steadfast direction of the energy transition of maritime mobility must ensue, backed by credible funding mechanisms which are fit for purpose.** In its current form, **the re-regulatory framework remains rigid, ineffective, and ill-equipped to accelerate the fuel supply chain, bridge the supply gap, and fulfill the climate ambitions already initiated by the industry.** To mobilize the €34.7 – 46.7 billion in investment required for sustainable maritime fuel production by 2035<sup>7</sup>, the eFuel Alliance presents a road-map for immediate action, identifying concrete amendments needed within the Renewable Energy Directive, the FuelEU Maritime Regulation, and the Emission Trading Scheme extension to maritime transport, alongside a restructuring of funding schemes.

## MOBILIZING THE INVESTMENT IMPERATIVE FOR EFUELS IN SHIPPING

### 1. Renewable Energy Directive (RED) (Directive (EU) 2018/2001)

- **Long-term RFNBO Mandates under RED:** Establish a cross-sectoral mandated minimum supply quota toward mid century, backed by clear penalty structure
- **Modification of production criteria:** Set a temporary exemption for electricity production criteria and enable utilization of point source emissions
- **Removal of non-tariff trade barriers:** Enable certification of renewable fuel production outside of Europe by readdressing operating aid certification criteria, carbon sourcing rules, geographic correlation criterion and implementation of the Union Database
- **Cross sectoral approach:** Deploy a strong cross-sectoral mandate via RED, guaranteeing the off-take for all co-products (like e-diesel and e-MGO) is required to rapidly achieve economies of scale and substantially de-risk investments in maritime eFuels.

### 2. FuelEU Maritime Regulation (Regulation (EU) 2023/1805)

- **Amend RFNBO sub-target mechanism:** Acknowledge early mover disadvantage by amending the existing RFNBO sub-target under FuelEU Maritime to reflect a clear, long-term demand signal.
- **Alignment with global rules:** Intelligibly and transparently signal harmonization of EU rules with the IMO Net-Zero (IMO NZF) framework and incorporate design elements of the regional frameworks into the IMO NZF via implementation protocol.
- **Flexibility in chain of custody for renewable fuel procurement:** Establish a flexibility mechanism based on a book and claim principle, in line with the Sustainable Transport Investment Program, to alleviate the burden of decarbonization and accelerate the transition by solving the mismatch between supply and demand for regionally constrained eFuels.

### 3. ETS extension to maritime transport (Directive 2003/87/EC)

- **RFNBO-Specific Allowances:** Implement a maritime allowance system similar to aviation to bridge the cost gap for renewable fuels. This would effectively recycle the forecast €5.4 billion in ETS revenues directly back into the sector by reserving allowances specifically for RFNBO uptake.
- **Longer time horizons for investment clarity:** Ensure an intelligible timeline for support beyond 2040 to match the 10-15 year offtake agreement requirement set by producers of renewable fuels

### 4. Targeted funding mechanisms

- **Capital grants and loan guarantees for first-of-a-kind facilities dedicating offtake to maritime:** Use existing EU instruments such as the *Innovation Fund*, the *Connecting Europe Facility (CEF)*, the *European Hydrogen Bank*, *Horizon Europe*, and the *InvestEU framework* to provide targeted capital grants that offset high upfront CAPEX and ensure future grant structures prioritize projects based on a strategic importance criterion and long-term system value over the lowest short-term abatement cost and innovation level
- **Double-sided auctions:** Address system bankability by moving beyond upfront capital grants to instead secure project revenue through de-risking market investment instruments, such as compensating producers for the difference between a predetermined and lower market price, ideally through an EU-orchestrated double-sided auction mechanism
- **Dedicated maritime window under Hydrogen bank:** Forcing RFNBO producers with transport off-takers to compete directly against heavy industry projects and resulting in lower bids and failure to reach Final Investment Decision (FID) illustrates the necessity of a fully dedicated maritime funding window to ensure the sector secures the necessary targeted financial support
- **Green Corridors:** Strategically leverage green corridors for demand aggregation in areas defined high volume shipping routes

## 1. RENEWABLE ENERGY DIRECTIVE (DIRECTIVE (EU) 2018/2001)

The Renewable Energy Directive (RED) is the EU’s primary legislative framework for driving the adoption of renewable fuels. Through mandatory transport sector targets, the RED has catalyzed the emergence of a market for eFuels, albeit currently limited in scale, by guaranteeing a baseline of demand that demonstrably has de-risked investment in the renewable fuel space.

As illustrated in figure 1, the minimum demand for eFuels (RFNBOs) under the existing RED framework stands at approximately 36 TWh. While this provides a starting point, there remains a mandated supply of roughly 125 TWh of renewable fuels to reach the current ambitions of 29 % share of renewables in transport.

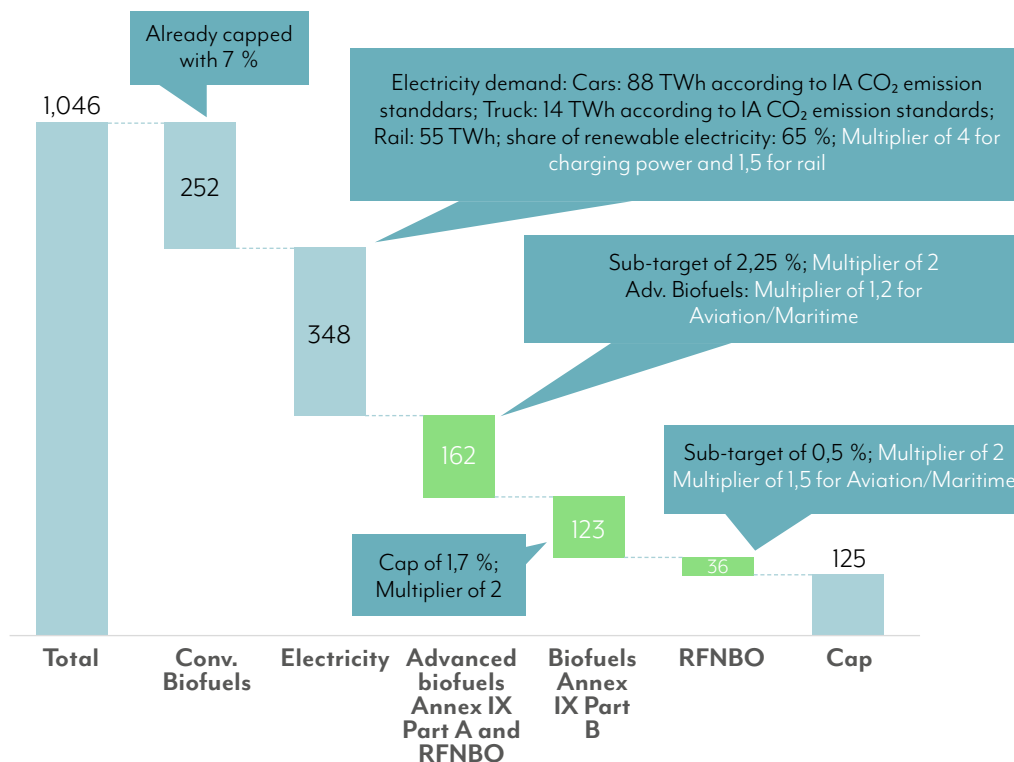


Figure 1: Mandated fuel supply under the Renewable Energy Directive

This section outlines how targeted amendments to the RED framework can effectively bridge this gap and unlock the necessary investment.

### 1.1. LONG TERM RFNBO MANDATES

The first cornerstone of a functional maritime eFuel market must be the implementation of ambitious, coherent, and stable long-term mandates under the revised Renewable Energy Directive (RED). Current targets provide inadequate visibility for the multi-billion-euro investments required, which demand amortization periods up to 20 years. This lack of certainty is crippling FID. The EU must commit to an upward revision of the RED to set legally binding quotas extending towards mid century in all Member States, not just near-term goals. **High ambition is entirely justifiable, given the tremendous supply-side potential: Announced installations are projected to supply over 25 million tonnes renewable hydrogen by 2035 and up to 55 tonnes by 2040 – equivalent to roughly 60–120 million tonnes of eFuels such as methanol or synthetic LNG, potentially meeting about 80 % of all EU transport demand, with hundreds more e-fuel projects under development globally.**<sup>8</sup> Failure to signal this long-term demand is a failure to match regulation with technical capacity.

## 1.2. MODIFICATION OF PRODUCTION CRITERIA

The existing regulatory framework for eFuels contains a critical element directly responsible for stalling high-potential projects: the overly restrictive, complex, and bureaucratic production criteria established in the RED Delegated Acts. These regulations, which govern key aspects like temporal and geographical correlation for renewable electricity sourcing and the strict eligibility of CO<sub>2</sub> feedstocks, are **creating an untenable operating environment that severely undercuts EU competitiveness**. In fact, the EU has adopted the most stringent RFNBO production rules globally, imposing significant financial burdens.<sup>9</sup> **The strict additionality and correlation requirements alone are confirmed to increase the Levelized Cost of Hydrogen (LCOH) by an estimated 20 % to 40 %, resulting in a cost penalty of up to 2.4 EUR/kg hydrogen<sup>10</sup> and the European Court of auditors found that switching from monthly to hourly temporal correlation alone could increase production costs by around 25 %.**<sup>11</sup> This self-imposed cost burden is compounded by global regulatory disparity: **the EU generally prohibits the use of subsidized renewable electricity, unlike the incentivized frameworks in the United States and United Kingdom, and unnecessarily restricts necessary raw materials.**

Specifically, the current legislation excludes CO<sub>2</sub> of fossil origin, including process emissions, from counting toward avoided emissions after 2040.<sup>12</sup> **Expanding eligibility to include hard-to-abate industrial process emissions is essential to secure the necessary raw materials for scaling eFuel production.** While core sector emissions are projected to reduce to 661 Mt CO<sub>2</sub> by 2050, up to 130 Mt CO<sub>2</sub>/year will still stem from process-related emissions in industries like cement and chemicals. Allowing the capture and utilization of these highly concentrated, process-related emissions, which remain stable and represent large point sources, would potentially allow for the generation of an additional 36 billion litres diesel-equivalent of synthetic fuels in 2050. This additional volume is critical given the estimated total demand for synthetic fuels is between 41 and 84 billion litres in 2050.<sup>15</sup>

To solve this problem and eliminate the competitive disadvantage, the eFuel Alliance calls for the immediate modification of these production rules to reflect market pragmatism. **This requires temporary exemption from strict electricity generation criteria until 6 GW of European electrolysis capacity has been achieved, establishing a market footing. Importantly, the Commission must immediately allow the widespread and long-term use of unavoidable industrial process CO<sub>2</sub> from hard-to-abate sectors like cement and chemicals.**

## 1.3. REMOVAL OF NON-TARIFF TRADE BARRIERS (DELEGATED REGULATION (EU) 2023/1184 AND 1185)

Current RED requirements create a series of structural barriers that make it extremely difficult for renewable fuels produced outside the EU to qualify as RFNBOs. Most global renewable electricity is effectively excluded because the framework disqualifies power from any asset that has received subsidies, a condition that is incompatible with how many countries have built their energy systems.<sup>14</sup> For producers relying on grid electricity, the situation is **further complicated by strict additionality rules and by temporal and geographical correlation requirements that depend on EU-style market structures and bidding zones- features that are often absent or impossible to demonstrate in third-country systems.** At the same time, the rules governing CO<sub>2</sub> sourcing prohibit the use of fossil-based CO<sub>2</sub> unless it originates from an installation covered by an “effective carbon pricing system” comparable to the EU ETS, something that does not exist outside the EU.<sup>15</sup> **This immediately disqualifies nearly all industrial point sources globally, leaving only biogenic CO<sub>2</sub> or direct air capture, both limited and costly, while the three-month CO<sub>2</sub> mass-balancing period further restricts project viability in regions with strong seasonal variations.** These challenges are compounded by the incomplete implementation of the Union Database for extra-EU supply chains<sup>16</sup> and by slow, fragmented certification processes that leave developers without clarity or predictable timelines. **The result is a regulatory environment that – rather than ensuring sustainability – prevents access to global renewable resources, deters investment, and delays the scale-up of eFuels that the EU urgently needs which in turn affects project economics and the corresponding cost of the output.** In fact, LUT university found in a recent analysis that enabling global volumes of eFuels in harmonized manner would reduce overall levelized cost of eFuels by up to 30 %<sup>17</sup>. We call for an immediate revision of the RED delegated acts to remove non-tariff trade barriers and enable certification of eFuels produced outside of Europe.

## 1.4 CROSS-SECTORAL MANDATE

Improving the economics of maritime eFuels requires a decisive shift to a cross-sectoral demand approach. The sector's viability hinges on replicating the standard refining model, yet the Fischer-Tropsch synthesis process used to make efuels inherently yields a mixed product slate. Of the total output approximately 37 % is gasoline, 32 % kerosene, and only 28 % diesel – rather than just marine fuel. This means that only part of the production directly serves shipping while the rest must find markets in other sectors such as road mobility or aviation. Without a firm market mandate for these co-products, particularly in road transport which accounts for over 70 % of total fuel consumption, the entire cost burden is unfairly concentrated on the price-sensitive shipping industry.<sup>18</sup>

**Without a firm market mandate for these co-products, these necessary costs are unfairly absorbed by the final marine fuel, concentrating all financial risk onto the price-sensitive shipping sector.** Shipping's demand alone (100–150 million tons green hydrogen) is dwarfed by the 500–600 million tons required by other sectors, meaning that aggregating cross-sectoral demand is the only path to generating the bankable volume commitments producers need to reach FID.<sup>19</sup> Furthermore, this synergy is essential because the critical path to e-fuel viability is severely constrained by supply bottlenecks. The marine sector already faces fierce competition for limited renewable energy and hydrogen against power and heating sectors<sup>20</sup>; therefore, a strong, cross-sectoral mandate centered on delivering fuel volume to market is required to secure the molecules necessary for maritime transport.

## 2. FUELEU MARITIME REGULATION (REGULATION (EU) 2023/1805)

The FuelEU Maritime Regulation, establishes a technology-neutral lifecycle greenhouse gas (GHG) intensity standard for marine fuels to progressively decarbonize the shipping sector. It is the pivotal instrument for fuel integration, designed to drive the uptake of sustainable energy carriers by mandated GHG reductions, stringent penalties and pooling of compliance.

eFuels represent an emerging market with a supply chain that has not yet been effectively scaled. **In the absence of a balance between supply and demand, and given their reliance on renewable energy – which, while expected to scale rapidly, has not yet reached sufficient levels, the levelized cost of electrolytically produced hydrogen will remain high.** This creates a classic “chicken and egg” problem: shipowners are likely to prioritize lower-hanging options in the biofuel segment, which, while available today, lack the scalability of eFuels necessary for long-term success in maritime decarbonization.

As highlighted in the European Maritime Safety Agency's 2024 report, Potential of Synthetic Fuels for Shipping, the total cost of ownership (TCO) for **eFuel-powered vessels is expected to be high relative to VLSFO-powered vessels in 2030. However, by 2050, TCO is projected to decline significantly due to greater integration of renewables in the global energy mix, lower energy prices, and advances in carbon capture technologies.** As figure 2 illustrates, the annual difference in TCO for an eFuel powered bulk ship is projected to be 45–85 % higher than conventional ships in 2030, before declining significantly in 2050.<sup>21</sup>

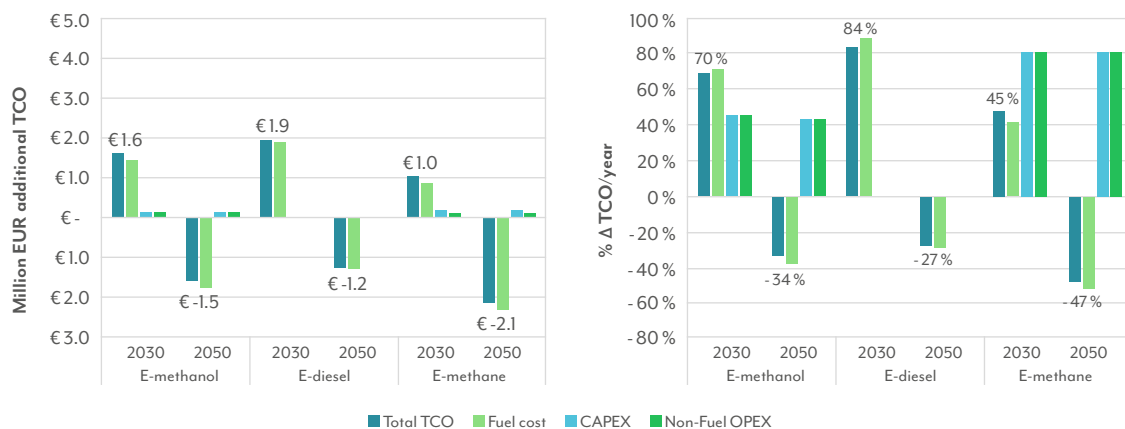


Figure 2: Total Cost of Ownership for eFuel propelled vessels in 2030 and 2050

This section outlines how to meet these challenges and bring RFNBO volumes to market and achieve the scale required, policy must address the early-mover disadvantage by deploying effective transitional enablers specifically targeted at maritime integration.

## 2.1 FUELEU MARITIME SUBTARGET

Article 5 of the FuelEU Maritime Regulation sets a provision whereby energy derived from the combustion of RFNBOs on-board a ship is counted twice as an incentive for their use. If the share of RFNBOs remains below 1 % by 2031, a subtarget of 2 % is to apply until 2034. Paragraph 9 clarifies that the subtarget does not apply to a ship that demonstrates equivalent GHG reductions using other fuels. Paragraph 5 further allows exemptions if production capacity is insufficient, if RFNBO availability is unevenly distributed geographically, or if prices are prohibitively high.<sup>22</sup> Taken together, **these provisions signal a weak and contingent commitment. As such, the current FuelEU framework lacks the clear, long-term certainty necessary to mobilize major investments.** This is reflected in the finding that a key barrier to renewable fuel projects reaching FID is the lack of strong near- to mid-term mandates, as found by the *World Economic Forum report on fuelling the future of shipping*.<sup>23</sup> Crucially, the regulation also contains no mandatory trajectory for RFNBOs beyond 2034, leaving the market completely without a long-term investment signal. **By making compliance effectively optional – through exemptions and passive enforcement mechanisms riddled with loopholes – the regulation sends a mixed signal to market actors.** This approach is at odds with the IMO's revised GHG strategy, which targets a 5–10 % uptake of zero- and near-zero-carbon fuels in the short term.

By contrast, the aviation sector has implemented binding mandates with greater clarity and predictability. For example, the EU's ReFuelEU Aviation regulation sets a defined trajectory for Sustainable Aviation Fuel (SAF) blending, including defined sub-targets for the electrolytical pathway (eSAF) towards 2050 – absent of loopholes and contingencies.<sup>24</sup> **The aviation framework has been demonstrably more successful at mobilizing capital and securing investment, having unlocked 42 million tonnes of long-term SAF offtake agreements and forecast global capacity to reach 16.3 million tonnes by 2030.**<sup>25</sup> In contrast, the weak signals in the FuelEU Maritime Regulation have created critical market paralysis, leaving 85 % of projects reported by leading maritime suppliers under the Zero Emission Buyers Alliance stalled at the pre-FID stage and unable to secure the necessary financing.<sup>26</sup>

In response, the eFuel Alliance proposes a **concrete, binding RFNBO sub-quota for maritime shipping: 6 % by 2030, 12 % by 2035, 24 % by 2040, 36 % by 2045 and 48 % by 2050.** Establishing these targets would provide a clear, long-term signal to shipowners, fuel producers, and investors, reducing regulatory uncertainty and encouraging early-stage capital deployment in production, storage, and bunkering infrastructure. Binding quotas would also stimulate competition among fuel suppliers, accelerate technological innovation, and enable economies of scale that are critical to bring down the cost of RFNBOs. **By creating a predictable market trajectory, these targets would align maritime fuel policy with the EU's broader climate goals and the IMO's GHG strategy, ensuring that decarbonization progresses steadily while simultaneously supporting investment in renewable energy and carbon mitigation technologies.**

## 2.2 ALIGNMENT WITH GLOBAL RULES

As international shipping moves toward decarbonization, global regulatory alignment will be essential to ensure efficiency and competitiveness. In this context, the EU has a critical opportunity to shape the emerging *IMO Net Zero Framework*.<sup>27</sup> This opportunity is even more pronounced following the recent MEPC decision to adjourn adoption of the IMO NZF, which creates a temporary governance gap and makes proactive EU regulatory leadership even more important to maintain momentum and avoid fragmentation. Without such alignment, the sector risks double regulation through overlapping reporting obligations and market-based compliance schemes, creating unnecessary burdens and distorting global competition. Because the IMO NZF is being designed around the same structural pillars as FuelEU Maritime, namely a lifecycle GHG-intensity standard for marine fuels and a market-based compliance mechanism, the EU can promote coherence by ensuring the global framework incorporates methodologies proven effective in Europe: rigorous well-to-wake accounting to prevent emissions shifting, technology neutrality to reward innovation, and flexible compliance tools such as banking and pooling to reduce volatility and support cost-efficient decarbonization. **Strategically, the EU should commit to its intention not to maintain parallel systems indefinitely, but to transition regional reporting and compliance into a single IMO-led standard once it is fully robust, safeguarding both the competitiveness of EU ports and operators and the credibility of the global decarbonization effort.**

## 2.3 FLEXIBILITY MECHANISM

eFuels and similar alternatives are not yet available in large enough supply globally, and their availability is marked by significant regional differences, which is a major hurdle for a global industry like maritime shipping. **Decoupling the achieved greenhouse gas (GHG) emission characteristics from the physical flow of the product or transport activity is an important tool to address this hurdle.** In the maritime context, this allows the emission benefits derived from consuming low-emission alternative fuels to be separated from the actual transport service that utilized the fuel. The characteristics are booked in a registry, and consumers can claim them without a physical connection to the ship that consumed the fuel. This system is like how green electricity certificates are bought and sold today. For such a system to work and ensure environmental integrity, a robust governance structure is essential. **By allowing e-fuels to be consumed where they are physically available while allocating the emission benefits to customers globally, we can solve regional supply mismatches and aggregate demand.** In line with the Sustainable Transport Investment Program, we recommend establishing a flexibility mechanism based on the Book and Claim principle. This approach effectively alleviates the logistical burden of decarbonization and accelerates the transition by directly addressing the commercial challenges of regionally constrained, high-cost alternative fuel.

## 3. ETS TRADING SYSTEM (DIRECTIVE 2003/87/EC)

The EU Emissions Trading System (EU ETS), governed by Directive 2003/87/EC (as amended by Directive (EU) 2023/959), is the cornerstone of European climate policy. For the shipping sector, this "cap and trade" mechanism introduces a mandatory carbon price, requiring operators to surrender allowances for their verified emissions. While this effectively internalizes the external costs of fossil fuel combustion, the current framework is designed primarily to penalize pollution rather than to bridge the investment gap for clean technologies.

### 3.1 RFNBO-SPECIFIC ALLOWANCES

The primary obstacle preventing maritime decarbonization is the prohibitive price disparity between fossil and renewable fuels. With the Total Cost of Ownership (TCO) for newbuild e-fuel vessels currently **45 % to 85 % higher** than conventional ships, the economic case for early adoption is broken.<sup>28</sup> **The ETS extension to maritime transport does put a price on carbon but fails to actively reward the costly adoption of renewable fuels enough to overcome this cost differential, leading directly to the widespread stalling of projects.** To unlock private capital, the sector requires a targeted, market-based incentive that bridges this gap. The EU ETS mechanism for aviation provides the blueprint for solving this problem. The system currently reserves 20 million Allowances (worth approximately €1.6 billion through 2030) to incentivize first-movers by covering 95 % of the price differential for eSAF uptake. **This allocation of allowances acts as a financial guarantee that successfully de-risks the early stages of the e-fuel value chain, creating mandatory demand which is exactly what the stalled projects desperately need to secure financing.**<sup>29</sup> While the aviation ETS offers a valuable precedent, it also highlights design elements that should be improved for the maritime sector. The current system does not differentiate between bio-SAF and e-SAF, resulting in an undifferentiated support level that fails to strategically favor synthetic fuels with the highest long-term decarbonization potential. Moreover, the aviation allowances are only available until 2030, creating a narrow investment window and insufficient long-term visibility for project developers. These limitations provide the maritime sector with a clear opportunity to design a stronger, more future-proof RFNBO incentive mechanism.

In line with the Sustainable Transport Investment Program released by the Commission in November 2025, we propose implementing analogous maritime allowances – ring-fenced and prioritized for RFNBOs. With the EU ETS maritime extension generating significant revenue over (€5.4 billion is forecast), **the allowance system provides the ideal method to recycle that income directly back into the transition. Crucially, the system must offer a long-term duration – beyond 2040 to match the 10–15-year offtake agreements required by e-fuel producers, ensuring this public revenue directly enables deployment and unlocks the private investment needed by 2035.**

## 4. CAPITAL GRANTS AND LOAN GUARANTEES FOR FIRST-OF-A-KIND FACILITIES

The European Commission's recent calls for evidence – covering the 2040 climate target<sup>30</sup>, the Sustainable Transport Investment Programme<sup>31</sup>, and the EU Industrial Maritime Strategy<sup>32</sup> – consistently acknowledge that early-stage production facilities for renewable fuels face structural financial barriers that the market alone cannot overcome. **Capital costs for first-of-a-kind projects in Europe are estimated to be 70–130 % higher than in competing regions such as China, largely due to elevated costs of capital. At the same time, uncertain long-term operational revenues reduce bankability and limit access to debt financing. To address these challenges, we propose using existing EU instruments to provide targeted capital grants that offset the high upfront CAPEX associated with scaling RFNBO production.** Funding can be channeled through existing EU instruments, including the Innovation Fund, the Connecting Europe Facility (CEF), the European Hydrogen Bank, Horizon Europe, and the InvestEU framework, which already provide structures for capital support but must be adapted to the specific needs of RFNBO production.

### 4.1 ADAPT GRANTS STRUCTURE TO EMERGING FUEL SUPPLY CHAIN

The 2025 Annual Knowledge Sharing Report of the Innovation Fund confirms that the current approach – where projects primarily compete on cost-efficiency – is insufficient for sectors that require entirely new production ecosystems. Additionally, current funding structure disadvantage maritime fuel production by favoring projects with the lowest short-term abatement costs (e.g., by decommissioning coal plants)<sup>33</sup>. To correct this, future grant structures must incorporate a **strategic importance criterion, enabling prioritization of projects that are essential to Union climate objectives and that support technologies with long-term system value rather than the lowest short-term abatement cost.** Grant structures must also acknowledge the technical complexity of RFNBO projects and thus incompatibility with the existing timelines (4 years deadline for achieving financial close) as well as interdependencies with external infrastructure which cause high impact issues for the project development that is largely outside the control of the project developer.

### 4.2 CONTRACTS FOR DIFFERENCE / DOUBLE-SIDED AUCTIONS

Difficulty in securing adequate long-term off-take agreements is considered among the key reasons for delays in reaching financial close, particularly in nascent markets like hydrogen.<sup>34</sup> Cutting initial capital cost is insufficient and that instead securing project revenue by de-risking market investment instruments would effectively facilitate RFNBO integration in maritime. **Compensating producers for the difference between a predetermined price and a lower market price serves to establish cost parity and accelerate the integration of RFNBOs significantly.**<sup>35</sup> The system bankability problem currently not addressed by upfront capital grants would be addressed as project revenue certainly would spur private investment. **We propose advancing with an EU-orchestrated double-sided auction mechanism—building on the successful H2Global model, as indicated in the STIP.**<sup>36</sup> This instrument acts as a market intermediary to bridge the price gap: it establishes long-term purchase agreements with producers to provide the security needed for FID, while simultaneously auctioning volumes to off-takers at competitive market rates, with public funding covering the cost differential.

### 4.3 DEDICATED MARITIME WINDOWS UNDER HYDROGEN BANK AND INNOVATION FUND

Market creation is the strongest lever for bridging the price gap between fossil and renewable maritime fuels. However, the existing Hydrogen Bank competitive auction model is fundamentally flawed as it forces producers to compete directly against projects from heavy industry sectors like steel and chemicals. Experience has shown that e-fuel projects with transport off-takers are compelled to submit significantly lower bids, which inevitably leads to them being out-competed and failing to reach a Final Investment Decision (FID). **Consequently, we propose the a fully dedicated maritime funding window in the forthcoming European Hydrogen Bank auctions. This is an essential market correction required to ensure the shipping sector secures the targeted and ring-fenced financial support it needs to transition and remain globally competitive.**<sup>37</sup> Furthermore, current funding application processes are overly complex and capital-intensive, creating a significant and often insurmountable barrier for the Small and Medium-sized Enterprises (SMEs) that form the diverse backbone of the renewable fuel supply chain. **We require the simplification and decentralization of access criteria to democratize participation.** Until a dedicated financing mechanism is secured, the transition to sustainable maritime fuels will remain stalled and the Union's climate goals unattainable.

#### 4.4 GREEN CORRIDORS

While binding mandates and the ETS allowance system address high-level demand and cost disparity, Green Corridors represent a critical, complementary policy tool to accelerate localized supply chain development. Green Corridors – specific, **high-volume shipping routes between two or more major ports – are crucial because they aggregate and concentrate demand for e-fuels in specific geographic areas.** This concentrated, predictable demand signal is exactly what is needed to de-risk investment in first-of-a-kind production facilities and bunkering infrastructure. By focusing initial public and private investment on these strategic hubs, Green Corridors can provide the necessary long-term volume commitments fuel producers require to reach Final Investment Decision, mitigate high initial costs by achieving economies of scale faster than a dispersed, fleet-wide adoption policy and create localized demand for e-fuel co-products. **The EU should leverage existing financial instruments and coordinate with global partners to designate and financially support a network of Green Corridors focused on e-fuel integration, thus transforming fragmented signals into bankable, high-impact projects.** In addition, Green Corridors could facilitate the import of competitive RFNBOs from regions such as North Africa, helping to support the EU transition while reducing reliance on domestic funding.

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