# CO2 shipping sector ready to invest but stalled by unclear policies and risk disputes



Despite growing technical confidence in the viability of CO2 shipping, industry stakeholders continue to grapple with significant uncertainties that impede progress. At the CO2 Shipping & Terminals 2025 conference held in London, a clear message emerged: the sector is prepared to act but remains constrained by unclear policy frameworks, insufficient risk-sharing mechanisms, and a lack of certainty over future cargo volumes. Polls conducted throughout the event illustrated a consensus that clarity from policymakers and concrete demand signals are the most critical enablers for the sector’s growth. Yet, fundamental questions about risk allocation between emitters, transport providers, and storage operators persist, alongside concerns regarding the bankability of initial projects and the misalignment between national climate ambitions and infrastructure timelines.

A notable insight from the conference was the willingness among participants to proceed with investments in ship-based CO2 transport even before comprehensive pipeline networks are established. This shift perspectives positions shipping not merely as a transitional or backup solution but as a key component in carbon management strategies. However, scepticism prevails regarding the readiness of commercial models by 2030, with many citing legal ambiguities and fragmented coordination as significant obstacles. Industry leaders from firms like Harbour Energy and ENI highlighted the persistent timing disconnect between storage availability and emitter commitments, underscoring systemic challenges that remain unresolved. Nevertheless, over 60% of conference participants expressed optimism that the first commercial-scale CO2 shipping projects would be operational before 2030, particularly in Norway, Belgium, and the Netherlands. They also showed strong support for the development of standardised contracts and definitions across the value chain, advocating for leadership from classification societies and financial institutions.

These challenges within the CO2 shipping sphere reflect broader tensions in the maritime sector’s decarbonisation efforts. Although the International Maritime Organization (IMO) achieved a milestone agreement in April 2025 establishing global emissions limits and a carbon pricing mechanism for shipping, critics underscore the policy’s shortcomings. The rules, set to take effect in 2028, primarily tackle large vessels responsible for the bulk of sector emissions, yet the carbon levy covers only 10% of emissions and is regarded as insufficient to drive early adoption of zero-carbon fuels. Stakeholders express concern that the funding derived—estimated at around $11-12 billion annually—may fail to be equitably distributed or effectively utilised, particularly with criticisms from Pacific nations regarding neglect of vulnerable countries. This limited scope, combined with legal uncertainties, undermines investor confidence and complicates efforts to scale up sustainable fuel technologies.

The shipping industry’s decarbonisation faces additional practical and technological hurdles. With international shipping responsible for about 3% of global greenhouse gas emissions—a share projected to rise significantly if unchecked—there is increasing urgency to transition from heavy fuel oil to cleaner energy sources such as hydrogen, ammonia, methanol, and biofuels. Efforts to trial alternatives, like Fortescue’s ammonia-fuelled ship and Maersk’s dual-fuel methanol vessels, reveal promising advances but also expose supply chain and safety challenges. The Brentwood shipping company Maersk, for instance, recently shifted strategy to incorporate LNG-powered ships as a pragmatic interim measure, responding to insufficient availability of sustainable methanol, a fuel with potential green credentials but limited supply. Moody’s analysis noted that the dearth of green methanol and ammonia infrastructure, coupled with the costly need to retrofit vessels, complicates the pathway to net-zero emissions.

Adding to the complexity is the ageing global fleet, with many vessels averaging over 22 years old. This ageing infrastructure pressures shipowners to modernise without clear guidance on emerging fuel technologies or unified regulatory frameworks, raising investment risks. Sector-wide decarbonisation will demand substantial financial commitments—estimates from UNCTAD and Norwegian risk managers suggest annual additional costs could range from $8 billion to as high as $90 billion to support full deployment of carbon-neutral fuels and necessary infrastructure by 2050. Meanwhile, innovative energy efficiency measures such as optimized routing, hull cleaning, and wind-assisted propulsion offer partial solutions but cannot replace the need for cleaner fuels and comprehensive policy support.

This landscape of cautious ambition juxtaposed with operational uncertainty underscores a critical disjunction: the shipping and CO2 transport sectors are not short on technical ideas or willingness to act but lack the cohesive and predictable policy frameworks that can transform intent into large-scale investment. While incremental progress is evident, coherent alignment between regulators, financiers, emitters, and operators remains imperative. Without it, the vital role shipping must play in global decarbonisation risks being delayed by fragmentation and risk-averse behaviour—in effect, the sector is navigating towards a net-zero future without a shared map.

### 📌 Reference Map:

* Paragraph 1 – [[1]](https://www.rivieramm.com/news-content-hub/lack-of-alignment-not-ambition-keeps-co2-shipping-stakeholders-awake-at-night-85242)
* Paragraph 2 – [[1]](https://www.rivieramm.com/news-content-hub/lack-of-alignment-not-ambition-keeps-co2-shipping-stakeholders-awake-at-night-85242)
* Paragraph 3 – [[2]](https://www.reuters.com/sustainability/boards-policy-regulation/policy-watch-unambitious-global-shipping-deal-lost-opportunity-climate-2025-04-17/), [[1]](https://www.rivieramm.com/news-content-hub/lack-of-alignment-not-ambition-keeps-co2-shipping-stakeholders-awake-at-night-85242)
* Paragraph 4 – [[4]](https://www.reuters.com/sustainability/decarbonizing-industries/shipping-industry-still-sea-it-tries-navigate-net-zero-2025-06-04/), [[6]](https://sustainabilitymag.com/supply-chain-sustainability/moodys-shipping-decarbonisation), [[1]](https://www.rivieramm.com/news-content-hub/lack-of-alignment-not-ambition-keeps-co2-shipping-stakeholders-awake-at-night-85242)
* Paragraph 5 – [[7]](https://www.hydrocarbonprocessing.com/news/2023/09/shipping-industry-lacks-clarity-on-future-clean-fuels-on-path-towards-decarbonization/), [[4]](https://www.reuters.com/sustainability/decarbonizing-industries/shipping-industry-still-sea-it-tries-navigate-net-zero-2025-06-04/)
* Paragraph 6 – [[1]](https://www.rivieramm.com/news-content-hub/lack-of-alignment-not-ambition-keeps-co2-shipping-stakeholders-awake-at-night-85242), [[2]](https://www.reuters.com/sustainability/boards-policy-regulation/policy-watch-unambitious-global-shipping-deal-lost-opportunity-climate-2025-04-17/), [[5]](https://www.reuters.com/sustainability/climate-energy/pressure-builds-charge-global-shipping-sectors-co2-emissions-2024-03-18/)

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## Bibliography

1. <https://www.rivieramm.com/news-content-hub/lack-of-alignment-not-ambition-keeps-co2-shipping-stakeholders-awake-at-night-85242> - Please view link - unable to able to access data
2. <https://www.reuters.com/sustainability/boards-policy-regulation/policy-watch-unambitious-global-shipping-deal-lost-opportunity-climate-2025-04-17/> - In April 2025, the International Maritime Organization (IMO) reached a landmark agreement setting global emissions limits for shipping and introducing the UN’s first carbon pricing mechanism. Effective from 2028, the binding rules target large ships, which produce 85% of the sector’s CO2 emissions. While heralded as a diplomatic achievement, critics argue the measures fall short of the IMO’s own 2030 emissions reduction goal of at least 20% and fail to incentivize early adoption of zero-carbon fuels. Only 10% of emissions will be taxed under the $380/tonne levy, raising concerns about low climate impact and limited deterrence. Funds generated, estimated at $11-12 billion annually, aim to support a global net-zero transition, but the distribution and impact of this funding remain uncertain. Pacific nations criticized the deal for neglecting vulnerable countries, while green shipping advocates warned it benefits conventional fuels in the short term. Although the IMO defined zero-carbon fuels and introduced sustainability criteria, enforcement challenges and investment uncertainty persist. The deal lays foundational policy, but experts note significant work lies ahead to reach meaningful climate goals.
3. <https://apnews.com/article/933147f1bba7f4851134f128b07e6917> - In October 2024, the new head of the International Maritime Organization (IMO), Arsenio Dominguez, emphasized the need for the shipping industry to intensify efforts to reduce carbon emissions. Despite various decarbonization tools such as satellite-guided routes, hull cleaning, and slow steaming, Dominguez pointed out that more could be done to meet the IMO's 30% emission reduction target by 2030. The industry’s reliance on heavy fuel oil, which emits harmful pollutants, necessitates a shift to cleaner fuels like hydrogen, ammonia, and biofuels. However, the challenge lies in the scalability, cost, and clean production of these fuels. The shipping sector, responsible for 3% of global greenhouse gas emissions, has lagged behind other industries in reducing carbon pollution. The IMO is considering a global carbon tax to simplify compliance for shipping companies, aiming for broad decisions by 2027. Although using liquid natural gas can temporarily reduce emissions, environmental concerns continue over its methane leaks. The IMO's efforts to mandate cleaner fuels and implement greenhouse gas pricing will be crucial in the coming years.
4. <https://www.reuters.com/sustainability/decarbonizing-industries/shipping-industry-still-sea-it-tries-navigate-net-zero-2025-06-04/> - In June 2025, the shipping industry, responsible for 3% of global greenhouse gas emissions, faced pressure to decarbonize, with projections indicating its share could rise to 5-8% by 2050 without intervention. The International Maritime Organization and EU introduced new emission regulations, including mandatory limits and carbon pricing. To meet targets set for 2035 and 2040, the sector explored alternative fuels like ammonia, methanol, hydrogen, and biofuels. Fortescue’s Green Pioneer ship trialed ammonia, which emits no CO2 when derived from renewable sources, though supply and safety challenges remained. Methanol, particularly green and e-methanol, gained traction, notably by Maersk, which deployed dual-fuel ships and established supply agreements. Biofuels offered a readily deployable solution, but their sustainability was questioned due to land use impacts. Energy efficiency technologies, from optimized routing software to wind-assisted propulsion systems like rotor sails, also proved effective, offering significant fuel savings. Despite high costs and regulatory complexity, industry stakeholders viewed the recent IMO framework as a pivotal step towards net-zero, encouraging investment in green technologies and infrastructure. However, uncertainty and fragmented readiness continued to challenge the pace of decarbonization across the global maritime sector.
5. <https://www.reuters.com/sustainability/climate-energy/pressure-builds-charge-global-shipping-sectors-co2-emissions-2024-03-18/> - In March 2024, the European Union, Canada, Japan, and Pacific Island states were among 47 countries advocating for a charge on shipping sector greenhouse gas emissions. This proposal, discussed at the International Maritime Organization (IMO), could potentially raise over $80 billion annually to support low-carbon shipping fuels and aid poorer countries in transitioning. However, nations like China and Brazil opposed this levy, arguing it would negatively impact trade-reliant emerging economies. Alternatives included a global fuel emissions standard with financial penalties for breaches, proposed by Argentina, Brazil, China, and others. The IMO aimed to reach a consensus or majority support for these measures, targeting a 20% emissions cut by 2030 and net-zero emissions by 2050. The discussion remained divided on issues like charge administration and revenue reinvestment, with a decision expected by September.
6. <https://sustainabilitymag.com/supply-chain-sustainability/moodys-shipping-decarbonisation> - In December 2024, Danish shipping giant Maersk provided a telling example of the difficulties shipping companies face in moving towards greener operations. Maersk had long been sceptical about LNG, viewing it as only a partial solution to decarbonisation, given its fossil fuel origins. However, the company had recently ordered 50 to 60 dual-fuel ships that can run on LNG. This shift in strategy highlighted the main challenge in shipping’s decarbonisation: the lack of readily available sustainable fuels like methanol. Sustainable methanol, which is seen as a potential green alternative to fossil-based marine fuels, remained in short supply. According to Moody’s, there simply wasn’t enough of it available to meet demand, and this shortage would likely persist for the next decade, if not longer. This forced Maersk to adjust its strategy, despite its ambitious environmental goals, including a 35% reduction in emissions by 2030 and 96% by 2040. While Maersk’s decision to invest in LNG-powered ships reflected the pressing need to act now, it also underlined the limitations of current technology and fuel availability. Moody’s pointed out that many vessels expected to be delivered over the next few years would require expensive modifications to run on methanol or ammonia, adding further complexity to the industry’s decarbonisation efforts.
7. <https://www.hydrocarbonprocessing.com/news/2023/09/shipping-industry-lacks-clarity-on-future-clean-fuels-on-path-towards-decarbonization/> - In September 2023, at the start of the year, commercial ships were on average 22.2 years old, two years older than a decade ago, according to the report. "More than half of the world’s fleet is over 15 years old," UNCTAD said. "Shipowners face the challenge of renewing the fleet without clarity regarding alternative fuels, green technology and regulatory regimes to guide ship owners and ports, while port terminals face similar challenges in vital investment decisions." In July, countries adopted a revised greenhouse gas strategy for shipping that set a net zero emissions target by or around the middle of the century, which was seen by environmental groups as not ambitious enough. Decarbonizing shipping by 2050 would require large investment, and the UNCTAD report cited estimates from Norwegian risk manager DNV indicating additional annual costs of $8 billion to $28 billion to enable ships to reach that target. The industry is exploring a number of different technologies, including ammonia and methanol in an effort to move away from dirtier bunker fuel. Wind assisted propulsion is another clean energy option being looked at. UNCTAD'S report said that scaling up fuel production, distribution and marine bunkering infrastructure to supply 100% carbon neutral fuels by 2050 would require estimated annual investments of around $28 billion to $90 billion. "Estimates suggest that full decarbonization could raise annual fuel costs by 70 to 100% compared to current levels," UNCTAD said. "Shipping cannot decarbonize on its own." Maritime trade volume contracted marginally by 0.4% in 2022 but UNCTAD projected it would grow by 2.4% in 2023 with moderated growth of 2.1%-2.2% forecast between 2024-2028.