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Ammonia as a marine fuel: The state of play heading into 2025

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Progress last year toward the development of ammonia as a maritime fuel of the future was significant. There was a notable increase in orders for ammonia-fueled vessels in 2024, compared with 2023. Moreover, several engine manufacturers, including [MAN Energy](#), [WinGD](#), and [Wärtsilä](#), made progress announcements.

In December, the International Maritime Organization (IMO) approved interim guidelines at a meeting of its Maritime Safety Committee (MSC) which, for the first time, set international safety procedures for the use of ammonia as a marine fuel. Ammonia is not currently covered by the International Code of Safety for Ships Using Gases or Other Low-flashpoint Fuels (IGF Code), so the latest IMO guidance is a significant step forward.

The IMO interim guidance advised several areas including restricting hazardous and toxic spaces, minimising ammonia releases, advising mitigation systems, ensuring sufficient ventilation of fuel tanks and the provisions of safe havens on board.

However, the guidelines are non-mandatory and will likely see several revisions over the coming years. The IMO will review them again in either 2026 or 2027.

Of interest, ammonia cargo can be used as a fuel on gas carriers as of 1 July 2026, following the MSC's agreed amendment to existing policy.

The impact of legislation

Renewable and alternative fuels such as low-carbon ammonia received a boost from legislation in 2024 and will continue to do so in 2025. The EU Emissions Trading System (ETS) was extended in 2024 to cover maritime, meaning that emissions on voyages and port calls within the European Union/European Economic Area must now be covered by the required EU Allowances (EUAs). The phase-in period runs to the end of 2025, with 100% of 2026 emissions (carbon dioxide (CO₂), nitrous oxide (N₂O), and methane (CH₄)) to be covered by allowances in 2027.

From January 2025, FuelEU Maritime comes into force, setting requirements for the annual average greenhouse gas intensity of energy used by ships within the EU/EEA, based on a well-to-wake accounting system. It starts with a 2% reduction target in 2025 (versus a 2020 baseline), increasing to an 80% reduction by 2050.

The [Global Ammonia Service](#) is a monthly report offering comprehensive insights, including ammonia price, cost, and margin forecasts, along with key legislation updates and impact analysis.



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Both pieces of legislation, which are independent of each other, add a cost burden to conventional, CO₂-emitting fuels. FuelEU Maritime will give alternative, low-carbon fuels a greater value by also factoring in the production process. However, ETS Maritime will likely be more impactful than FuelEU through the 2020s because of the latter's gradual phasing-in process.

Some old challenges remain

Despite the clear progress being made, some old challenges remain. Safety concerns persist because ammonia is toxic. This has led to pushback from the public as well as parts of the maritime sector, creating additional crewing considerations.

Its lower energy density compared with traditional marine fuels prompts questions about efficiency, while the expected higher cost of low-carbon ammonia versus conventional fuels on a comparative basis, remains a lingering concern. Although sulfur and carbon free at point of combustion, ammonia does emit nitrogen oxides (NO_x) and N₂O, the latter of which is measured under both the ETS maritime extension, as of 2026, and FuelEU regulations. However, there is established technology available to mitigate these emissions.

Have any questions about the ammonia market? Submit your questions here for Ammonia Director, Carl Roache.



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Looking ahead to 2025 and beyond

Orders for ammonia-fueled vessels will continue to rise in 2025. However, there is still uncertainty about what will be the leading fuel or fuels of the future. No one fuel is projected to dominate, not least because regulations are expected to continue to change.

As a result, dual-fuel technology demand has grown as buyers opt for functionality and flexibility. Liquefied natural gas (LNG) dual fuel was the most prominent choice in 2024, said attendees at a recent shipping industry gathering.

Ammonia's potential as a marine fuel is backed by Chemical Market Analytics by OPIS's detailed market analysis and forecasting, in the new [Global Ammonia Service](#) launching in January 2025.

Sources: DNV, International Maritime Organisation, Ammonia Energy Association

The **Global Ammonia Analysis** service offers monthly reports that provide both short-term and long-term market analysis and forecasts, designed to meet your needs at various stages.

Monthly Reports:

Core Content:

- Ammonia price/cost/margin forecasts and trade balances
- Trade overview, including key loading and discharge operations
- Modeled green ammonia/hydrogen costs

Featured Content:

- Midstream developments, including ports, storage, and infrastructure
- Overview and analysis of low-carbon projects
- Focus on key legislation and analysis of the implications
- Long-term supply and demand analysis. Focus by region or supply sector (low carbon or conventional), or demand area (marine, power, chemicals, fertilizers)
- Ammonia marine-fuel analysis – demand analysis

Quarterly Updates:

- Ammonia long-term price forecast
- Special feature webcast/podcast

Half-Yearly Updates:

- Biannually updated supply and demand database with forecasts up to 2050 Detailed supply and demand analysis, covering industry changes and strategic overview

Interactive Dashboard:

- A customizable dashboard offering personalized data viewing to meet specific needs, with export capabilities

Global Ammonia Analysis helps you answer these questions:

What are regional and global **competitors'** low-carbon production strategies?

When will there be **enhanced demand**, and how will it affect conventional demand?

Will there be a **supply glut** or **shortage** of low-carbon ammonia, and if so, when?

How will carbon costs/CBAM **impact prices** and trade flows in the medium term?

Where can ammonia be **sourced**, and what is the cost likely to be?

Ammonia Market Expert



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Global Ammonia Analysis will be launched in January 2025.

If you are interested or would like to request a sample report, please provide your contact details in the form, and we will get in touch.

<https://chemicalmarketanalytics.com/services/global-ammonia-analysis>