# Shipping industry set for quieter silhouette but smarter, greener vessels by 2035



The shipping industry stands on the brink of profound transformation as it gears up for a decade marked by innovation and sustainability. With the advent of regulations aimed at reducing emissions and the rising call for cleaner alternatives, the vessels of 2035 may appear to an untrained eye much like today’s ships. However, beneath the familiar outlines, the integration of advanced technologies promises to redefine their functionality entirely.

According to industry experts, while hull designs will largely resemble current models due to constraints imposed by existing port infrastructures, significant functional enhancements will emerge to meet sustainability demands. Ajay Chaudhry, CEO of Synergy Marine Group, asserts that changes will be evolutionary rather than revolutionary, emphasising practical adaptations such as increased fuel tank sizes, wind-assisted propulsion systems, and aerodynamically optimised superstructures. “Function will still dictate form, though sustainability demands will reshape certain visible elements over time,” explains Stamatis Tsantanis, CEO of Seanergy Maritime.

The real transformation lies within the ships themselves. Experts predict that digital control rooms, sensor-integrated systems, and AI-operated controls will become standard fare aboard vessels, significantly enhancing operational efficiency and safety. Shah Irani, chief technology officer at Fleet Management, points to a future where artificial intelligence informs predictive safety measures and operational decisions, ultimately reshaping everything from navigation to fuel management.

As the industry endeavours to cut down on its carbon footprint—contributing around 3% of global emissions—the focus on alternative fuels has intensified. Green technologies such as ammonia and hydrogen are emerging as practical solutions. Hanwha, for example, is spearheading developments in ammonia-fuelled gas turbines, taking strides towards a fossil-free maritime sector. This innovation aligns with the International Maritime Organization’s target to reduce emissions by 40% by 2030.

Yet challenges abound. Dr Kanghyun Song from the Korean Register articulates the uncertainties inherent in this transition, noting that fuel price volatility and regulatory ambiguities present considerable hurdles. She mentions the necessity for new vessels to possess flexible fuel systems capable of adapting to changing technologies and regulations. Meanwhile, the push towards decarbonisation requires significant investment, with many operators now adopting a “spend-to-save” approach that prioritises long-term operational efficiencies over initial costs.

Furthermore, the change will necessitate a broad educational overhaul within the workforce. As the global demand for low-carbon fuels increases, a notable skills gap persists. The International Maritime Organization estimates that by 2030, hundreds of thousands of seafarers will need retraining to safely manage new, potentially hazardous fuels such as ammonia. As Patrick Wadden from GIT highlights, understanding the challenges faced by shipowners and crew will be critical in ensuring that technological innovations are successfully integrated into everyday operations.

In parallel, AI technology could significantly reduce emissions by optimising navigational tasks and minimising route deviations. A study by Orca AI posits that such advancements could yield annual reductions of 47 million tonnes in carbon emissions. These findings not only underscore the urgency of adopting innovative processes but also the multitude of benefits that come with smarter technology.

The next decade in shipping will not drastically alter ship silhouettes, but the essence of their function will shift dramatically. As digitalised decision-making becomes the norm and cleaner propulsion technologies are adopted, the shipping sector stands poised to enter a new era characterised by intelligence, efficiency, and accountability. Those who invest in these advancements early may not only achieve compliance with emerging regulations but also secure a competitive edge in an increasingly scrutinised industry.

As the world rallies around the urgent need for sustainable practices, the shipping industry’s evolution appears to be not just a necessity, but an unprecedented opportunity for innovation.

## Reference Map:

* Paragraph 1 – [[1]](https://splash247.com/how-ships-will-look-in-10-years-time/), [[4]](https://time.com/6961248/green-hydrogen-shipping-decarbonization/)
* Paragraph 2 – [[1]](https://splash247.com/how-ships-will-look-in-10-years-time/), [[2]](https://www.axios.com/sponsored/a-new-wave-of-innovation-paves-the-way-for-green-shipping), [[3]](https://www.reuters.com/technology/artificial-intelligence/ai-can-help-shipping-industry-cut-down-emissions-report-says-2024-06-18/)
* Paragraph 3 – [[2]](https://www.axios.com/sponsored/a-new-wave-of-innovation-paves-the-way-for-green-shipping), [[5]](https://www.reuters.com/sustainability/climate-energy/sea-change-seafarers-shipping-industry-gears-up-decarbonise-2024-12-03/), [[6]](https://apnews.com/article/933147f1bba7f4851134f128b07e6917)
* Paragraph 4 – [[1]](https://splash247.com/how-ships-will-look-in-10-years-time/), [[5]](https://www.reuters.com/sustainability/climate-energy/sea-change-seafarers-shipping-industry-gears-up-decarbonise-2024-12-03/), [[6]](https://apnews.com/article/933147f1bba7f4851134f128b07e6917)
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## Bibliography

1. <https://splash247.com/how-ships-will-look-in-10-years-time/> - Please view link - unable to able to access data
2. <https://www.axios.com/sponsored/a-new-wave-of-innovation-paves-the-way-for-green-shipping> - The shipping industry is at a critical point, needing to transform towards sustainability to meet net-zero targets by 2050. Maritime shipping is a significant contributor to greenhouse gas emissions due to its dependence on fossil fuels. A promising solution is emerging with ammonia, which can burn without producing CO2. Hanwha is leading innovation by developing the world’s first ammonia-fueled gas turbines, aiming to eliminate the need for fossil fuels in shipping. Hanwha's strategy integrates expertise from its maritime, clean energy, and aerospace sectors to create a synergetic ecosystem. The company recently secured a $500 million order to build large ammonia carriers and has a detailed roadmap for carbon-free and electrified ships, focusing on highly efficient, autonomous vessels, and various decarbonization technologies, aiming for a carbon-neutral supply chain.
3. <https://www.reuters.com/technology/artificial-intelligence/ai-can-help-shipping-industry-cut-down-emissions-report-says-2024-06-18/> - A recent study by autonomous shipping startup Orca AI revealed that utilizing artificial intelligence (AI) in sea navigation could potentially reduce the commercial shipping industry's carbon emissions by 47 million tonnes annually. AI technology works by aiding in maneuvering and reducing route deviations, particularly during close encounters with high-risk marine targets, thus optimizing voyages and cutting down fuel consumption and emissions. The shipping industry, responsible for about 90% of global trade, contributes approximately 3% to global carbon dioxide emissions, a figure expected to rise if stringent pollution controls are not implemented. As AI helps reduce navigational tasks' complexity and fuel usage, it supports the International Maritime Organization's goal to cut emissions by 20% by 2030. Orca AI's CEO, Yarden Gross, emphasized that AI's role in the near term would lessen the workload on crew members and eventually lead to fully autonomous shipping. The study also stated that reducing route deviations could save ships 38.2 million nautical miles yearly and approximately $100,000 in fuel costs per vessel. AI could lower close encounters in open waters by 33%, thus enhancing maritime safety and efficiency.
4. <https://time.com/6961248/green-hydrogen-shipping-decarbonization/> - Green fuels, particularly green hydrogen, are significantly advancing the decarbonization of the shipping industry. At the COP28 in Dubai, top CEOs from major shipping companies called for a halt in building fossil fuel-only vessels, showcasing ambitious climate targets. Traditionally challenging due to high fuel requirements and difficulties in electrification, shipping accounts for 3% of global emissions, yet recent developments in green hydrogen technology are reducing its climate impact. Green hydrogen, created by splitting water with renewable electricity, is processed into green methanol or green ammonia, significantly less polluting than fossil fuels. While the high production costs of green hydrogen pose economic challenges, the shipping industry is moving forward with large-scale deployments and setting ambitious targets, like Maersk's aim for net-zero emissions by 2040. Experts highlight that green hydrogen, although less efficient than direct electrification, plays a crucial role in heavy industries. Reducing green hydrogen costs over time could also position it competitively against fossil fuels, fostering economic growth for nations investing in its production.
5. <https://www.reuters.com/sustainability/climate-energy/sea-change-seafarers-shipping-industry-gears-up-decarbonise-2024-12-03/> - The shipping industry, responsible for 3% of global emissions and vital for global trade, is under pressure to decarbonize rapidly. The International Maritime Organization targets a 40% emissions cut by 2030 through low carbon fuels like hydrogen and ammonia, and improved digital technologies. However, the industry's 2 million seafarers, mostly from the Global South, require significant training to safely handle new, hazardous fuels such as ammonia. By 2030, 450,000 seafarers will need additional training, rising to 800,000 by the mid-2030s. Challenges include regulatory uncertainty, financing, and the existing training framework's slow adaptation. Efforts like the EU Maritime Skills Forum and SkillSea aim to bridge the skills gap, ensuring no worker is left behind. Developing sustainable fuels and infrastructure presents opportunities, especially for countries with access to cheap renewable energy, but necessitates substantial investment in landside production systems. Comprehensive skills development, emphasizing both green and digital competencies, is crucial for the industry's future sustainability.
6. <https://apnews.com/article/933147f1bba7f4851134f128b07e6917> - The new head of the International Maritime Organization (IMO), Arsenio Dominguez, has 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.