



# Navigating Toward Net-Zero: The IMO's New Framework and the Future of Green Shipping

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In a landmark move to combat climate change, the [International Maritime Organization](#) (IMO) has introduced a legally binding framework aimed at reducing greenhouse gas (GHG) emissions from ships worldwide. This initiative is part of a broader strategy to achieve [net-zero emissions from international shipping](#) by or around 2050, a goal that reflects both the urgency of the climate crisis and the complexity of decarbonising a sector that underpins global trade.

## Key Elements of the IMO's Strategy

The IMO's revised strategy, set to be formally adopted in October 2025 and enforced from 2027, introduces two pivotal mechanisms:

1. A Global Fuel Standard: Ships will be required to reduce their annual greenhouse gas fuel intensity (GFI), a measure of emissions per unit of energy consumed. This standard will apply to large ocean-going vessels over 5,000 gross tonnage, which collectively account for approximately 85% of CO<sub>2</sub> emissions from international shipping.
2. A Global Pricing Mechanism for Emissions: Vessels exceeding GFI thresholds must acquire remedial units to offset their emissions. These units can be:
  - Transferred from other compliant ships,
  - Drawn from previously banked surplus units,
  - Purchased via contributions to the newly established IMO Net-Zero Fund.

The Net-Zero Fund will serve as a central financial instrument, collecting revenues from emissions pricing and redistributing them to reward low-emission ships and support innovation, research, and infrastructure development.

## The UK Perspective: Strategies and Challenges

In the UK, reducing maritime emissions requires a multi-pronged approach that blends technical innovation, operational efficiency, and robust policy frameworks. While several strategies show promise, others face significant logistical, economic, or technological hurdles.

### What Works

- **Slow Steaming:** Reducing vessel speed can dramatically cut fuel consumption. A 10% speed reduction may lead to a 19% decrease in engine power, translating to lower emissions. However, this must be balanced against potential delays in cargo delivery.
- **Optimised Vessel Design:** Designing larger, slower vessels with space for alternative fuel systems can enhance efficiency and facilitate the transition to cleaner energy sources.
- **Low-Carbon and Zero-Emission Fuels:** Fuels such as hydrogen, ammonia, biofuels, and synthetic alternatives offer substantial emission reductions. Their adoption is critical for long-term [decarbonisation](#).
- **Shore Power Solutions:** Allowing ships to plug into the electrical grid while docked eliminates emissions from auxiliary engines, improving air quality in port cities.
- **Fuel Efficiency Technologies:** Innovations like air lubrication systems, wind-assisted propulsion, and waste heat recovery can significantly improve fuel economy.
- **Emission Capture Systems:** Technologies such as exhaust gas cleaning systems (scrubbers) help reduce pollutants, although they do not eliminate CO<sub>2</sub> emissions.
- **UK ETS Scope Expansion:** Including domestic shipping in the UK [Emissions Trading Scheme](#) (ETS) can incentivise emission reductions through market-based mechanisms.
- **Emission Control Areas (ECAs):** These zones enforce stricter fuel standards, leading to measurable reductions in sulphur dioxide and particulate matter.

## What Doesn't Work (Yet)

- **Speed Reductions Alone:** While effective in theory, slow steaming can disrupt supply chains and increase costs, especially for time-sensitive cargo.
- **Infrastructure Gaps:** The production, storage, and distribution of zero-emission fuels like hydrogen and ammonia remain underdeveloped, limiting their scalability.
- **Technological Barriers:** Propulsion systems for large vessels that can run on alternative fuels are still in early stages of development.
- **Economic Constraints:** High upfront costs for retrofitting ships or building new zero-emission vessels can deter investment, particularly among smaller operators.
- **Regulatory Uncertainty:** A lack of clear, harmonised policies across jurisdictions can stall progress and discourage innovation.

## Broader Considerations for Green Shipping

Achieving net-zero in maritime transport is not a one-size-fits-all endeavour. It requires:

- **Integrated Solutions:** Combining operational changes with technological upgrades and policy support is essential for meaningful progress.
- **Global Collaboration:** Shipping is inherently international. Harmonised regulations and cooperative frameworks are vital to avoid fragmented efforts and regulatory loopholes.
- **Support for Innovation:** Government incentives, public-private partnerships, and targeted funding can accelerate the development and deployment of clean technologies.
- **Long-Term Vision:** The transition to net-zero will span decades. It demands sustained commitment, strategic planning, and adaptability to emerging challenges and opportunities.

## Looking Ahead

The IMO's new framework marks a turning point in maritime climate governance. While the road to net-zero is fraught with challenges, it also presents a unique opportunity to reshape the industry for a more sustainable future. For the UK and other maritime nations, success will depend on bold leadership, strategic investment, and a willingness to embrace innovation.

## Contact

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