

Nitrogen reduction

Position

26 September 2024 #Sustainability Downloaded on 09-07-2026

Implement a practical approach to reducing nitrogen emissions in maritime shipping by ensuring reliable catalysts and promoting the development of shore power solutions.

Why is this important?

To significantly reduce nitrogen emissions from maritime shipping, several countries have established nitrogen management zones, also known as NOx **Emission Control Areas** + (NECAs). These zones impose stricter nitrogen oxide (NOx) emission requirements based on a ship's **keel laying** + date, with the NOx Tier III standard being the most recent.

This standard mandates a 70% reduction in NOx emissions compared to **Tier II engines** +. Ships with keels laid after 1 January 2016 and operating in North American waters must comply with the NOx Tier III standard. For the North Sea and Baltic Sea, this standard applies to ships with keels laid after 1 January 2021.

To meet this stricter requirement, **after-treatment systems** + such as Selective Catalytic Reduction (SCR) are often installed on board, using urea to reduce nitrogen oxide emissions. Additionally, **shore power** + offers a solution for NOx emissions in ports. Ships can plug into shore-based electrical grids, allowing them to receive power without using their diesel engines, thus reducing NOx emissions.

How should we solve it?

Meeting the stricter NOx Tier III standard makes it so a practical approach that minimizes administrative burdens while effectively reducing nitrogen emissions, necessary. Ensuring the optimal functioning of SCR systems and expanding the implementation of shore power are key priorities.

However, SCR systems frequently underperform and may struggle to meet even the Tier III requirements. Contributing factors include low combustion temperatures, system malfunctions, and low engine loads, particularly problematic when ships are entering ports or sailing along coastlines, where NOx emissions form a higher risk to human health and the environment. Unfortunately, shipowners have limited influence on this issue. Since you cannot sail using full engine load when approaching a port.

The current NOx Technical Code does not adequately account for lower engine loads, making it difficult to ensure that SCR systems function effectively in real-world conditions. The Royal Association of Netherlands Shipowners (KVNR) is therefore advocating for an additional test point for new ship engines within these regulations to guarantee that SCR systems perform reliably under all conditions.

Shore power, which supplies electricity to ships docked in port, has been on the Dutch government's agenda for some time. The KVNR is actively engaging with the government and members of Parliament to accelerate the rollout of shore power. This includes fast-tracking business cases for the necessary onshore infrastructure and on-board installations for seagoing ships. A major challenge for lower-power ships is the need for global standardisation of shore power systems. This is crucial to prevent ships from needing multiple types of plugs, similar to travelers who prefer not to carry different adapters for various destinations.

State of affairs - 1 November 2024

At the 11th meeting of the [International Maritime Organization's +](#) (IMO) Pollution Prevention and Response (PPR) sub-committee, draft amendments to the NOx Technical Code and [MARPOL Annex VI +](#) were finalized. These amendments apply to engines that are not certified after the amendments take effect, with specific rules for engines on ships built before 1 January 2000.

Additionally, amendments related to multiple operational profiles for marine diesel engines have been approved. There has also been reached an agreement to revise MARPOL Annex VI and the NOx Technical Code to include an additional test point for low engine loads. These changes are expected to take effect in 2026.

The European Union is also working on a shore power mandate for seagoing vessels to reduce emissions in ports. Infrastructure proposals were presented in 2023, with regulatory finalization expected in 2024. These efforts focus on promoting renewable energy and sustainability within the maritime sector.

In the Netherlands, the recently published 2025 tax plan includes increased tax relief and amendments to support shore power usage, offering shipowners financial incentives by lowering the cost of shore power. Equal treatment for all electricity consumers further promotes the adoption of shore power, while the phasing-out of reduced rates encourages shipowners to take advantage of the current cost benefits.

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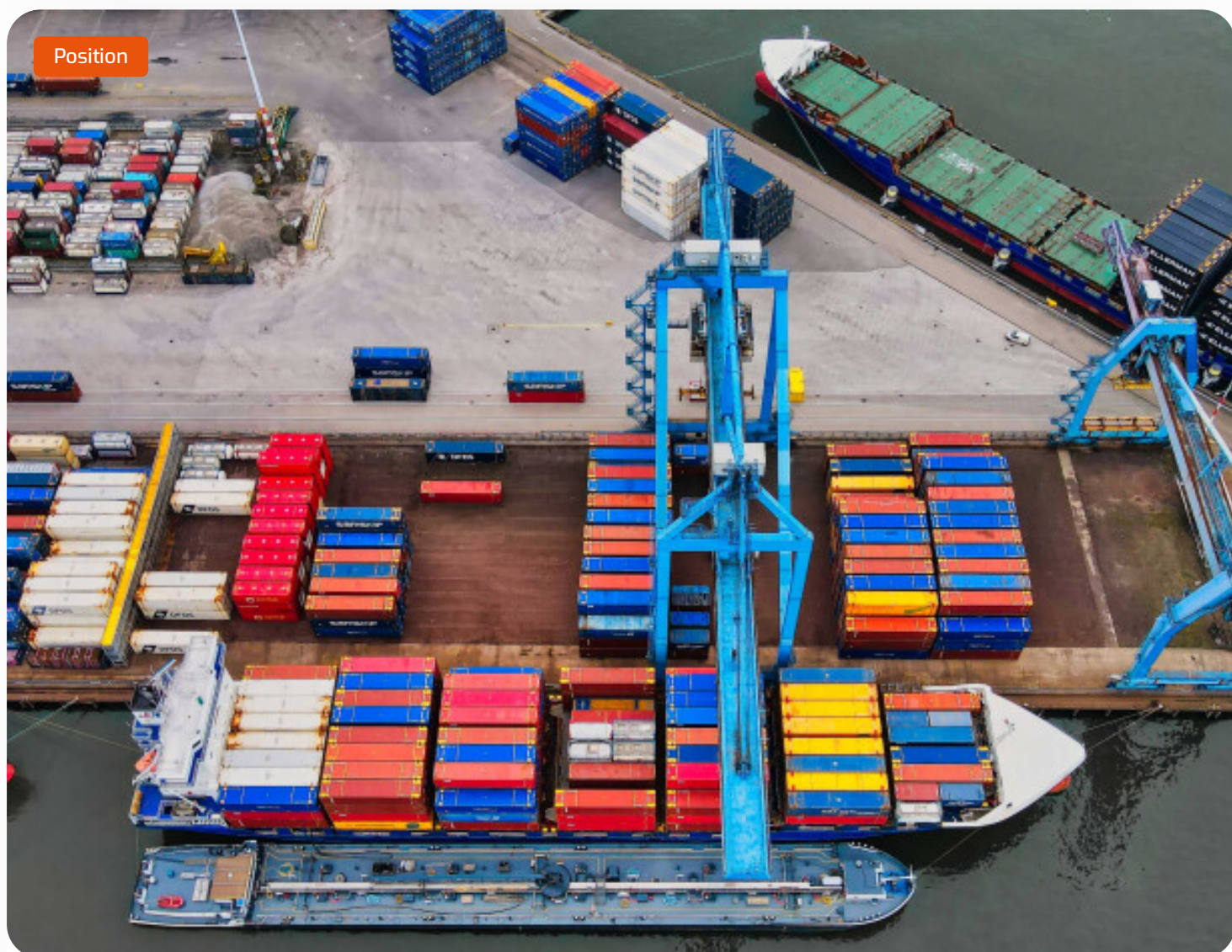
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