



The (new) default option

by Eirill Bachmann Mehammer, *Senior Consultant Environment Advisory Maritime, DNV*

The Nordic Roadmap project, coordinated by DNV and funded by the Nordic Council of Ministers, is a collaboration that brings together key stakeholders from across the maritime value chain in the Nordic region. This project aims to reduce key barriers and establish a common guide for implementing the maritime fuel transition across the whole of Nordics. The project's pilot studies of green shipping corridors will be critical in supporting the ultimate goal of achieving zero-emission shipping by 2050.

The maritime industry faces a pressing need to address its environmental impact and transition towards more sustainable fuels. The International Maritime Organization (IMO) has recently set more ambitious decarbonization targets for international shipping, including achieving net-zero emissions by mid-century.

Furthermore, the Nordic countries have committed to accelerating the transition, among others, by signing the **Declaration on Zero Emission Shipping by 2050 and the Clydebank Declaration for Green Shipping Corridors** during the 2021 United Nations Climate Change Conference in Glasgow. These commitments are the background for establishing the Nordic Fuel Transition Roadmap, a strategic document that seeks to position the Nordics as the world's most sustainable and integrated maritime region by 2030.

Building on the accomplishments

DNV has played a pivotal role in the initial phase of the fuel transition, having coordinated the **Norwegian Green Shipping Programme** (GSP) since 2015. The GSP's success is exemplified by realising several zero-emission routes in Norway (now known as green shipping

corridors), such as *Yara Birkeland* and ASKO's electrified 'sea drones' in the Oslofjord. Additionally, DNV has been involved in electrifying the ferry network in Norway, where more than 70 battery-electric ships are now operating.

Building on the GSP's accomplishments, DNV manages the Nordic Roadmap project, which has already delivered ten **technical reports** where green shipping corridors and safety and regulatory aspects of future fuels have been an essential focus. The publications have been produced in collaboration with contributing partners from the Chalmers University of Technology, the IVL Swedish Environmental Research Institute, MAN Energy Solutions, Menon Economics, and Litehauz. The project also draws on the input and experience of around 50 supporting partners.

The remainder of the project period focuses on strengthening the Nordic collaboration platform, finalising the Nordic Fuel Transition Roadmap, and carrying out green shipping corridor pilot studies.

No way forward without collaboration & safety

Achieving challenging decarbonization goals requires cooperation from a range of stakeholders, and the Nordic collaboration

platform has been established to facilitate knowledge-sharing and create cross-value chain dialogue, helping to build green business cases.

Numerous authorities, shipowners, ports, energy suppliers, research organizations, banks and manufacturers are already part of the collaboration platform, and the project aims to bring more partners on board. Ultimately, engagement across the value chain will enhance the success of both the Nordic Fuel Transition Roadmap and the pilot studies.

Safety is also a prerequisite for the successful and timely introduction of zero-emission fuels. The Nordic Roadmap project has assessed the safety aspects of ammonia, hydrogen and methanol as marine fuels, examining their unique properties and consequences for safety and operability. Draft proposals have already been prepared to accelerate the ongoing IMO guideline development process for the safe use of ammonia.

Developing international regulations by IMO is key to enabling the safe implementation of zero-emission fuels and making the approval process more efficient. Apart from the obvious risks to persons directly involved, any accident around new ship fuels would severely setback the industry's confidence in these alternatives.

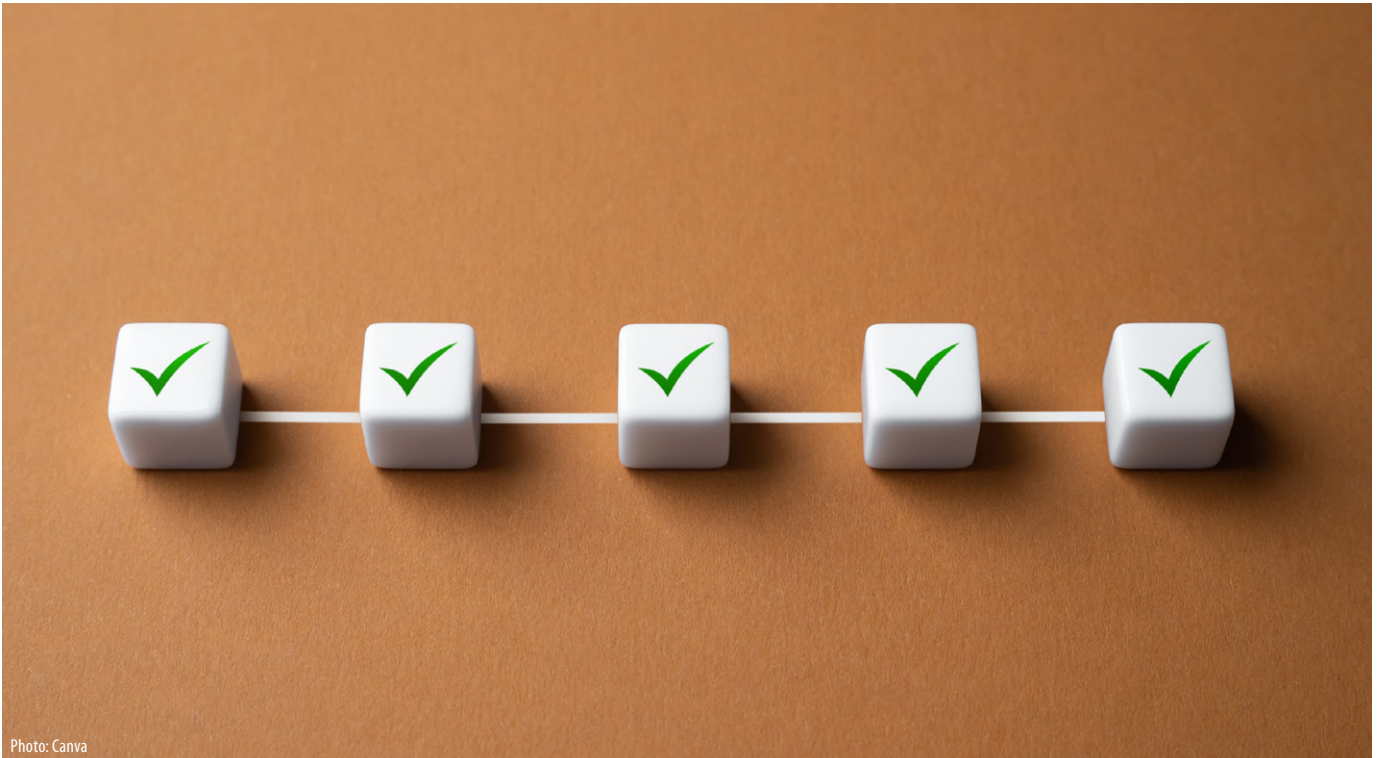


Photo: Canva

First-mover region

Once relevant partners are engaged and key technical and safety aspects addressed, the Nordic Roadmap project aims to create a strategic document – the Nordic Fuel Transition Roadmap – which will chart the way forward and propose specific goals and actions for the decarbonization of shipping in the Nordics. This strategic action plan will draw on technical knowledge, practical experience from pilot studies, and inputs from governments and industry partners to set a course towards the primary goal of zero-emission Nordic shipping by 2050. The document will highlight actions that must be taken to overcome the main barriers and make the Nordics a first-mover region for the decarbonization of shipping.

Meanwhile, the Nordic Roadmap project has identified three major obstacles hindering the transition to zero-emission fuels. First, there is the lack of demand for green transport and the high cost of future fuels; second, the low fuel availability and lack of bunkering infrastructure; and third, the technical immaturity and lack of specific safety regulations. Green shipping corridors can overcome these barriers by creating a demand for a particular fuel, securing offtake commitments, and encouraging supply-side investment and relevant infrastructure development.

This is a classic ‘chicken and egg’ problem for the demand and supply of

zero-emission fuels. A lack of offtake commitments hinders investment in alternative fuels, while a shortage of fuels creates higher pricing and discourages buyers. Green shipping corridors can help to solve this for a specific route by getting partners to sit around the same table and discuss the business case.

Moreover, critical for realising green shipping corridors will be finding ways to share risks and close the significant cost gap between zero-emission and conventional fuels. Governments and other public authorities can play a crucial role here. Designing financial support for narrowing the spread is essential in making the transition financially viable for first movers. Therefore, the public sector’s involvement can be instrumental in the uptake of new zero-emission technologies in shipping.

Regional spark that ignites a global transition

The Nordic Roadmap project has identified 81 potential green shipping corridors and shortlisted six promising routes in the Nordics. In the next step, three pilot studies focusing on hydrogen,

ammonia and methanol will be carried out to establish partnerships, assess the techno-economic feasibility of potential green shipping corridors, and identify critical bottlenecks. Success in these pilot studies can lead to the realization of several green shipping corridors, eventually creating an environment where these fuels and the vessels that use them are the default option, with fossil fuels being a thing of the past.

The knowledge base generated by the Nordic Roadmap project is freely available and intended to aid the development of green shipping corridors worldwide. The project is also considering potential corridors going out of the Nordic region, for example, to North-Western Europe and other parts of the Baltic. These green shipping corridors are hoped to kick-start the fuel transition and further scale to green shipping networks or areas and, hopefully, a global uptake of zero-emission fuels.

The 2020s have been deemed the decisive decade for shipping to achieve decarbonization ambitions, and the Nordic Roadmap project is helping the maritime industry to map the best course. □



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