Maritime Decarbonization Strategy 2022

A decade of change

Mærsk Mc-Kinney Møller Center
for Zero Carbon Shipping

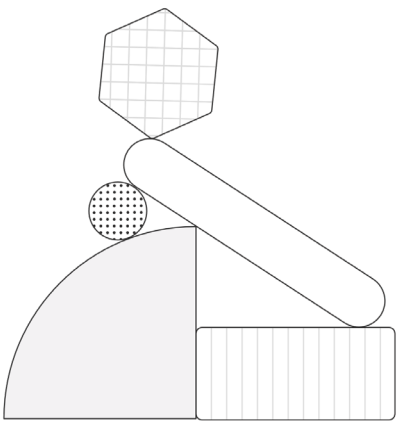
Executive Summary

Global warming is a climate emergency, and all sectors, including the maritime industry, must take immediate collective action to reduce emissions in line with the Paris 1.5°C trajectory. For the maritime industry, this means reducing emissions by 45% in 2030 compared with 2010-levels, thereby limiting the fossil fuel consumption of the global fleet to about 6 EJ in 2030 and reaching net zero by 2050. In this Maritime Decarbonization Strategy 2022, we report on the status of the transition in the maritime industry and outline key actions that lie ahead in this decade.

Recent momentum across the maritime industry demonstrates that the sector already has the most important component of any decarbonization strategy – a willingness to act. But current actions are not enough, and the industry must turn to take even more drastic means to bend the rising emissions curve.

This will require overcoming technical, commercial, and regulatory barriers as well as new levels of collaboration. It is a huge, complex challenge, but it is not impossible if the maritime ecosystem come together and act.

The future will be shaped by those who engage and shape the visions, concepts, standards, and solutions in four key areas:



1. Elevating onboard energy efficinecy

Onboard energy efficiency offer cost-effective opportunities for decarbonizing and the emissions reduction potential across the industry is significant. Improving efficiency by just 8% - or 1% per year until 2030 - could save ~1 EJ of energy, equivalent to 24 million tonnes of fuel oil and 0.1 $GtCO_2eq$ of greenhouse gas (GHG) emissions.

An array of energy efficiency measures and technologies and solutions are ready for use today but lacking commercial incentives and imperfect regulation mean their uptake is limited. Leveraging their full emissions reduction potential will require:

- Shipowners and operators taking immediate action to increase energy efficiency through rapid uptake of best practice. This should include installing energy efficiency technologies when dry-docking and requesting state-of-the-art designs when ordering new vessels.
- Businesses across the maritime value chain developing collaborative business models driven by transparency and sharing costs and benefits of increased energy efficiency in ship operations.
- The industry supporting the International Maritime Organization (IMO) in increasing their regulatory ambitions around energy efficiency.

2. Enabling alternative fuel pathways

Today our industry uses ~300 million tonnes of fossil fuel oil to produce ~12.6 EJ of energy, emitting more than 1 gigatonne of GHG emissions. We must replace fossil fuel oil with low-GHG alternatives to reach our decarbonization goals. The main alternatives include bio-methane, e-methane, bio-methanol, e-methanol, blue ammonia, e-ammonia, bio-oils, and e-diesel. We expect the industry will use multiple fuels in the future, however, all alternatives face technical, safety, commercial, and regulatory challenges.

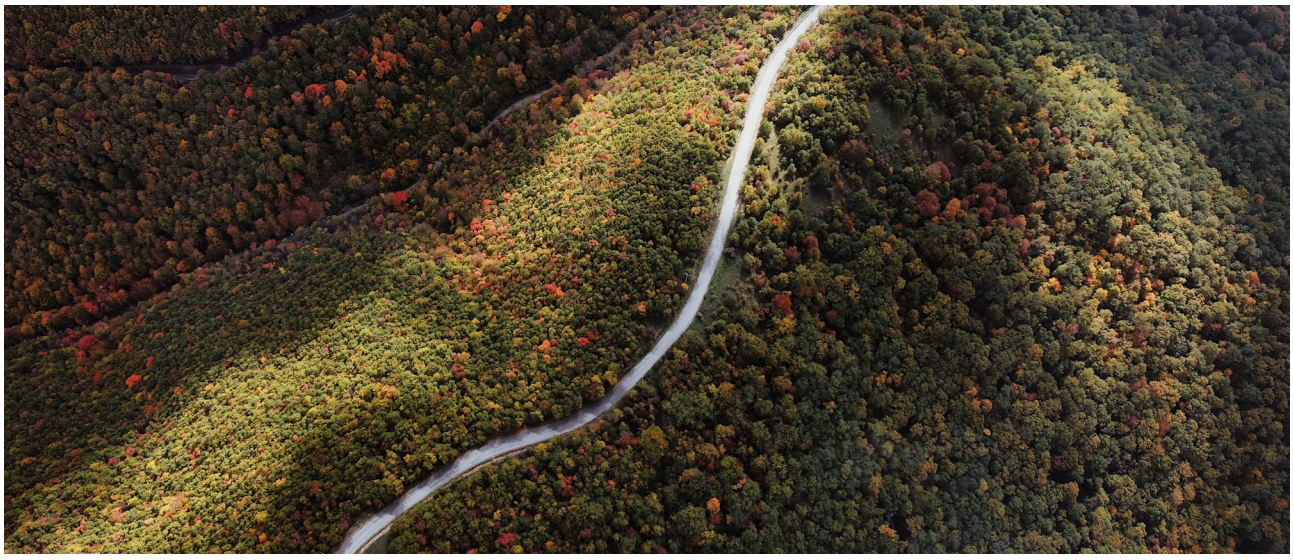
Current plans for upcoming alternative fuel production capacity suggest that supplies will be unable to meet demand in the coming decades. Long lead times mean we must start now to secure sufficient alternative fuel capacity in 2030 and beyond. The maritime industry can prepare to scale up alternative fuels by:

- Achieving technological readiness for all alternative fuel pathways and developing standards and regulations that ensure they are used safely, and with environmental and social responsibility.
- Addressing the imbalance between planned alternative fuel production supply and demand with solid investment commitments in large-scale fuel production infrastructure and building the competencies needed to scale up all alternative fuel pathways.
- Developing regulations and measures that ensure alternative fuel pathways become commercially attractive.

3. Promoting abatement action through regulation, policy, and commitments

Emissions reduction and uptake of new technology need to be incentivized through industry commitments and regulatory reform. Companies across the industry must set ambitious decarbonization targets and report their progress to create the traction and transparency needed to drive the transition forward. In this, it is critical to maintain a people-centered approach to ensure a safe and just transition. As the main regulatory body, the IMO must focus on creating policies, targets, standards and regulations that drive the uptake of decarbonization technologies, eliminate uncertainty, and close the cost gap between fossil and alternative fuels. Specific actions needed this decade include:

- Ambitious absolute emission targets from the IMO to reduce all GHG emissions from a well-to-wake perspective and reach net zero by 2050, aligned with the Paris 1.5°C trajectory.
- Supplementary emissions intensity and efficiency targets, intermediate targets for 2030 and 2040, global GHG pricing, and transparent emission reporting.
- Fast-tracked development of international rules and standards by the IMO to support alternative fuels and decarbonization technologies.
- Regional, national, and local policy roadmaps encouraging dedicated investments in green energy and fuel infrastructure for the maritime industry transition and engineering capacity to build these facilities.

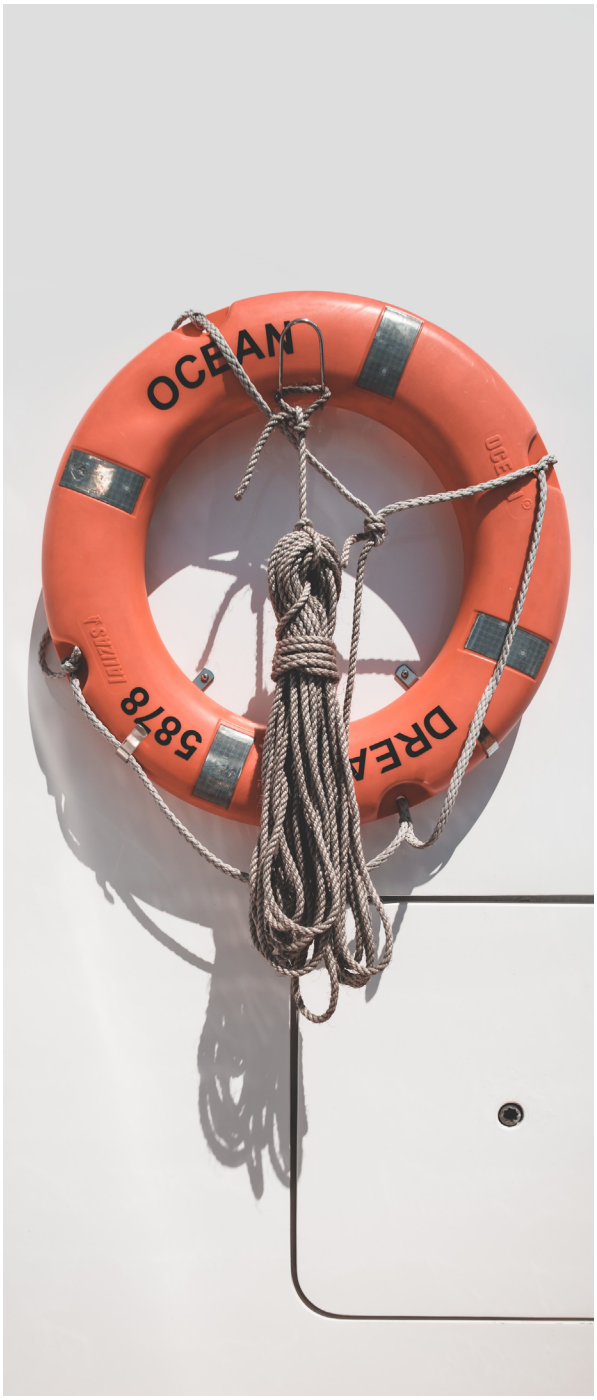


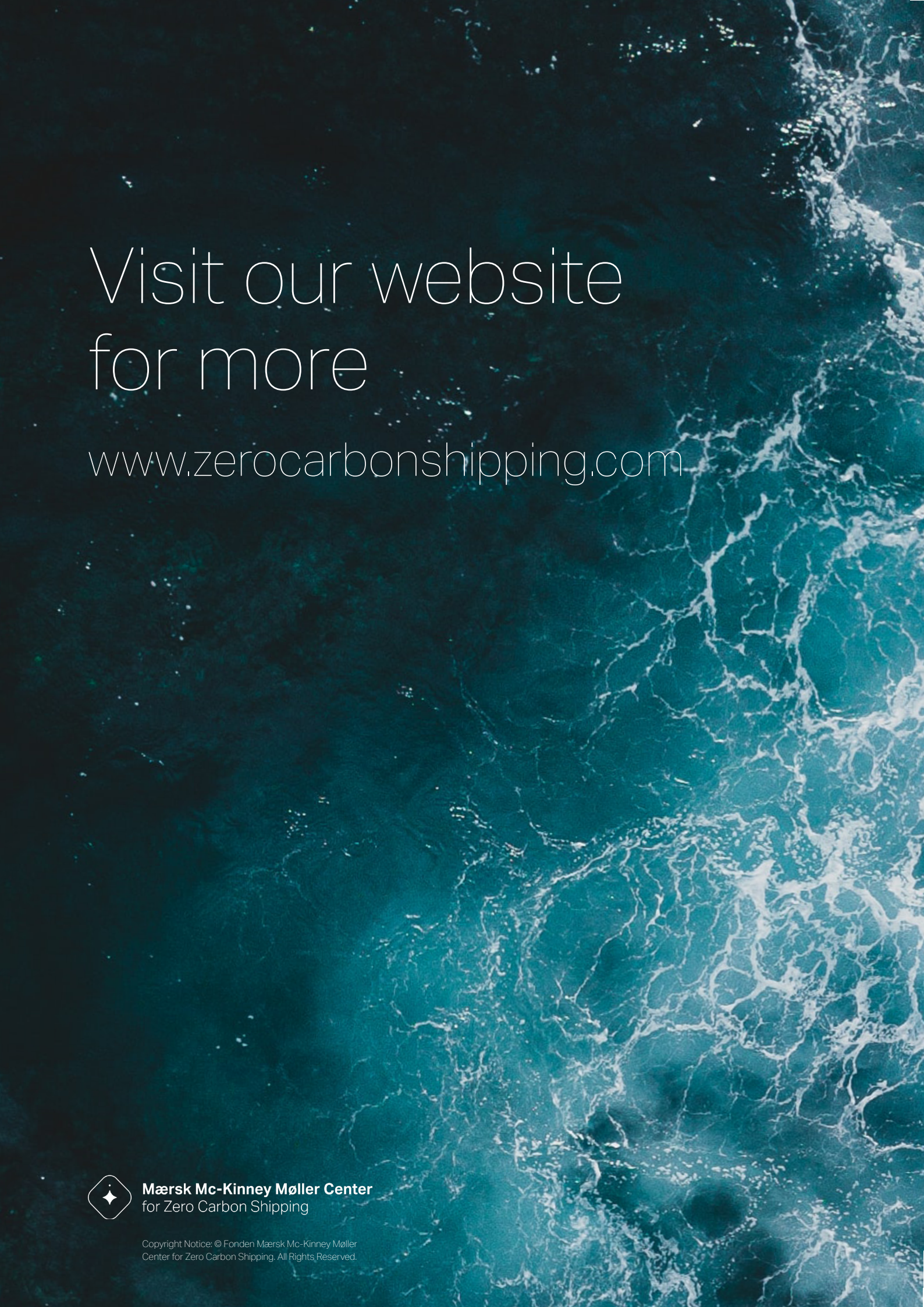
4. Promoting bold first movers and fast followers to unlock the trasition

First movers will be key transition accelerators. Their early actions and pilot projects will inform and inspire decision makers as they unlock technological innovations, identify gaps, develop solutions, and contribute to cost reductions.
The speed of the transition will depend on how quickly first movers from across the supply chain can come together and demonstrate decarbonization solutions, business models, and best practices for fast followers. However, being a first mover can be costly and uncertain. To support them in initiating the transition, we must share the costs, benefits, and risks for first movers. This means:

- Close collaboration across the value chain, between alternative fuel producers, ports, vessel owners/ operators and cargo owners to demonstrate and prove technologies, business concepts, and standards/regulations, and share the learnings, challenges, opportunities, and best practices.
- Mobilizing regulatory, policy and financial bodies to help de-risk first mover investments and decarbonization activities.
- Wide support for first mover initiatives that drive collective decarbonization and share costs, benefits, and risks, such as green corridors and Book & Claim systems.

Decarbonization won't happen overnight. We must prepare ourselves for decades of working together towards this common goal. We must change our mindsets from individualistic cost leadership to collaborative environmental leadership. And we must start now. The future of our industry depends on it.





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