

The Shipping Ecosystem Can Help Tackle Humanity's Climate-Change 'Code Red'

By Katharine Palmer and Peter Jameson

Humanity faces a “code red” situation due to human-induced climate change, warns the United Nations’ Intergovernmental Panel on Climate Change in a recent report. But climate catastrophe can be avoided provided industries and governments take strong and sustained action to curb greenhouse gas emissions. Shipping, which accounts for approximately 3% of emissions, has a significant role to play in mitigating global warming. Given the urgency of the task, now is the time for the industry to chart a course for net-zero emissions by 2050.

Global shipping must accelerate its race to zero

Shipping companies are under growing pressure from investors, customers, employees, and regulators to decarbonise. This is a significant task, however, and will require all players in the maritime ecosystem to take bold, decisive actions by investing in nascent technologies and committing to offtake agreements for zero-emission fuels.

Shipping plays an integral role in securing the resilient and sustainable supply chains needed to support economic growth and growing populations worldwide. As an ocean user, the industry has an obligation to help maintain healthy oceans, which are essential for regulating our climate. Furthermore, shipping can be a first mover industry, using its predictable and growing demand profile to unlock opportunities in green hydrogen. Given its role in society, there is clearly scope for shipping to act as a catalyst for countries and other industrial sectors to decarbonise.

But for industry decarbonisation to succeed, all members of the shipping ecosystem will need to play their part. The United Nations’ Marrakech Partnership for Global Climate Action sets out key milestones that must be reached for shipping to hit net-zero emissions by 2050. It also provides a clear call to action for all players - including policy makers, financial institutions, and technology providers - to participate, recognising that individual players cannot achieve net-zero on their own. Realising viable green fuel pathways and accelerated emission-reduction actions, for example, will require cross-industry collaboration.

Because of the long-term nature of shipping’s net-zero goal, shorter-term targets will be needed to help align and focus industry action. Zero-emission vessels will have to be commercially viable, technically feasible, and safe by 2030. A joint initiative by the Getting to Zero coalition, UMAS, and the UN High-Level Climate Champions has established the importance of two “breakthrough” targets: by 2030, zero-emission fuels will have to make up 5% of international shipping fuels and 15% of domestic shipping fuels to enable mass adoption by mid-century. (See Exhibit).

Change levers for global shipping

The UN High Level Climate Champions for COP26 have set out four main levers that can enable the shipping ecosystem to come together, speed up its decarbonisation efforts, and achieve net-zero emissions by 2050.

Technology and fuel supply: The shipping industry is converging on a number of technology pathways to reduce emissions. However, costs need to fall for these innovative solutions to become more attractive and feasible for mass adoption. Large-scale demonstration projects are essential for proving the economic viability and route to scale of new technologies and creating significant demand, thereby helping to lower adoption costs. For example, the “Green Hydrogen Catapult” aims to deploy 25 gigawatts of green hydrogen by 2026, halving current production costs to

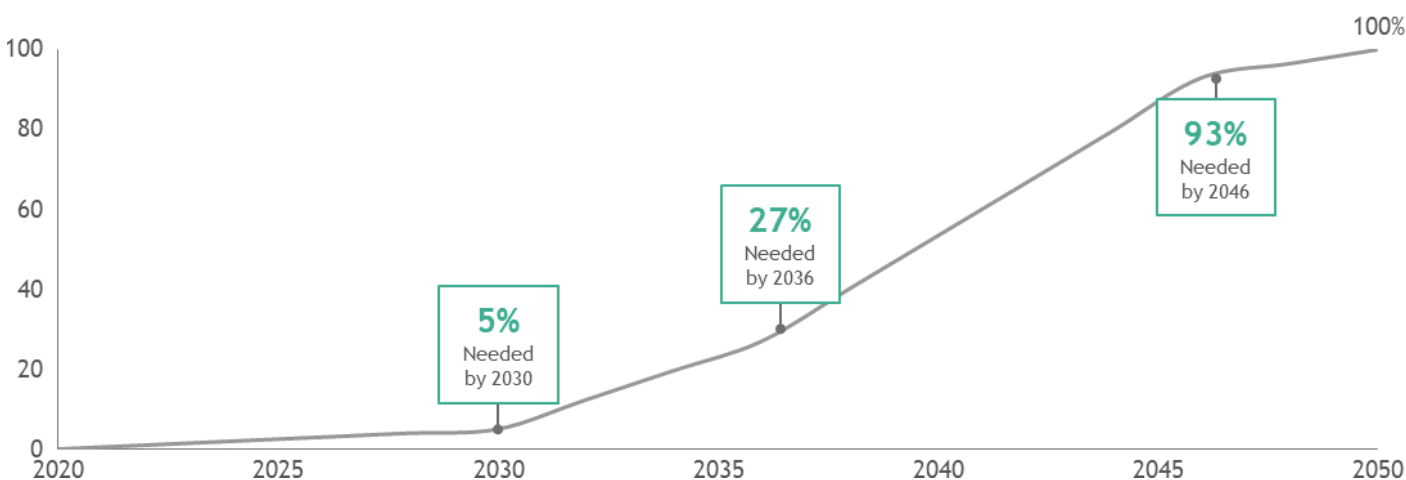
below \$2 per kilogram. Meanwhile, major ports have been assessed for their suitability for green hydrogen-based fuel adoption and production: the port of Rotterdam, for instance, plans to build a 500 megawatt plant to produce green hydrogen. Regarding vessel technology, the **Castor Initiative**, a joint project between ship builders, chemical and technology companies, energy producers, ports, and end users, aims to design, build, and commission the world’s first ammonia-fueled tanker by 2025 by tapping the different capabilities of its members.

First movers can derive significant benefits from taking the lead, including exclusive supplier agreements and stronger relationships with customers, investors, and lenders. But more importantly, first movers, through their success, encourage other players to participate in new technologies and leverage learnings, ultimately realising transformation across the entire industry and unlocking widespread benefits. According to the Environmental Defense Fund, mass adoption of green fuels will unleash trillions of dollars of infrastructure investment, especially in developing countries. Chile, for example, has largely untapped renewable energy resources, while Morocco possesses large ports near important shipping lanes. Such capabilities make these countries well-suited to drive green fuel adoption.

The shipping industry will need to create a culture of sharing learnings from technological innovation to ensure that no one is left behind. “Transform to Net Zero”, launched in

Zero-emission fuels will have to make up 5% of international shipping fuels by 2030

Zero-emission fuel adoption rate needed for sector decarbonization aligned with Paris goals (1.5°C trajectory)



Source: Getting to Zero Coalition: “Five percent zero emission fuels by 2030 needed for Paris-aligned shipping decarbonization”; COP26 Climate Champions; UMAS

July 2020, provides a good template. The initiative aims to accelerate the global transition to a net-zero economy. While it is led by nine leading businesses from different sectors, other companies are able to join. Small- and mid-sized companies may not have the resources to act on their own. Consequently, it is important that first-mover initiatives welcome them so they can participate in collaborative efforts and leverage joint learnings.

Demand: According to the OECD’s International Transport Forum, market conditions and rising conventional fuel costs, rather than regulations, are the main factors driving shipping companies to adopt technologies such as green fuels. Many shipping companies anticipate demand for shipping powered by green fuels will increase: in a recent BCG survey, 63% of respondents (including container ships, bulk carriers, and tankers) expected to be more willing to pay extra for carbon-neutral shipping within the next five years than they are today.

As well as other benefits, shipping players that help customers to decarbonise their supply chains can create greater loyalty and transform their customer relationships, so they stop being seen as a commodity service. With this in mind, A.P. Moller-Maersk is set to launch the world’s first carbon-neutral liner vessel (fueled by methanol) in early 2024. Its plans will pilot a scalable solution for customers and offer suppliers incentives to scale production of the fuels of the future. More broadly, charterers and shipping companies have created the [Sea Cargo Charter](#), which promotes greater transparency in reporting emissions relating to chartering activities. Some of the world’s biggest charterers are also working with technology companies on low-carbon technologies. For example, Cargill is partnering with BAR Technologies to harness wind power and Trafigura and Yara plan to jointly explore business opportunities in clean ammonia.

Financing: About \$2.4 trillion of funding will be needed for shipping to achieve net-zero emissions by 2050, according to BCG and the Global Financial Markets Association. This substantial sum will need to come from a range of investors in addition to the commercial banks that have traditionally been shipping’s main providers of finance. The public sector will need to take a far more active role in facilitating both private and public investment.

Fortunately, there are signs that environmentally responsible financing is becoming more widespread. Leading shipping banks have established the Poseidon Principles, which encourage lenders to assess and disclose climate considerations in their ship finance portfolios. The framework currently has 27 signatories representing nearly half of global shipping lending and will be revised to reflect the decisions made at the COP26 summit. The United Nations Environment Pro-

gramme Finance Initiative has created principles for financing a sustainable ocean-based economy. And, in recent years, banks have started extending loans which reward borrowers that meet pre-determined sustainability targets.

Policy making: Shipping’s race to zero won’t be won without a major regulatory push. Many players are delaying starting their net-zero journey until the pathway is clearer. But effective policies can create a level playing field and the right incentives needed to support their climate transition.

The European Commission’s proposed “Fit for 55” policy package has significant implications for shipping. The industry would, for the first time, be included in the EU Emissions Trading Scheme, meaning vessel operators would have to purchase allowances for emissions produced by voyages into and out of European ports starting from 2023. The European Commission’s “FuelEU Maritime” initiative will also impose limits on the emission intensity of fuels used by ships calling at EU ports. In July, China unveiled details of its long-awaited carbon emission trading scheme. Starting with the energy sector, the scheme will include eight industrial sectors and cover about 72% of national emissions. Such initiatives create an incentive for the shipping industry to accelerate its decarbonisation efforts. At the same time, however, strong leadership in the private sector could play a key role in raising the ambition of policy makers and advocating for even more effective policies.

Given that shipping is transnational by nature, global and regional regulations will have the greatest influence in driving the industry’s transition to net-zero. However, more nationally driven regulatory efforts could also be a significant force for change in the coming years. For example, the US is calling for 100% decarbonisation of the industry by 2050 – to prevent shipping’s share of global emissions rising to as high as 10% by then - and is seeking to enforce the move through the International Maritime Organization (IMO), but with the possibility to go beyond the IMO if necessary. And earlier this year, Germany, France, Denmark, and Sweden publicly urged the IMO to make fossil-based shipping fuels more expensive through market-based mechanisms. So far, 137 countries have committed to carbon neutrality and several of them may well push the IMO to achieve lower shipping emissions to meet their own targets.

The course ahead

The shipping industry will need to combine and accelerate the use of all four levers in its drive to decarbonise. The upcoming COP26 meeting is set to crystallise international efforts to work together, increase ambitions, and mobilise the resources needed to deliver a resilient net-zero global economy by mid-century. Fortunately, within the shipping industry ecosystem, there is already a growing emphasis on collective ownership across the value chain.

Going forward, governments, businesses, and civil society must join forces and take advantage of emerging opportunities for collaboration and turning ambition into action. All emission-reduction mechanisms, from industry decarbonisation pathways to policies and regulations, will need to be deployed, complementing each other in a symbiotic way. The 2020s will be decisive if the world is to achieve its net-zero goal. There is no better time for shipping to accelerate its race to zero.

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Race to Zero is the UN-backed global campaign rallying non-state actors – including companies, cities, regions, financial, educational, and healthcare institutions – to take rigorous and immediate action to halve global emissions by 2030 and deliver a healthier, fairer zero carbon world in time.

All members are committed to the same overarching goal: reducing emissions across all scopes swiftly and fairly in line with the Paris Agreement, with transparent action plans and robust near-term targets.

Led by the High-Level Climate Champions for Climate Action – Nigel Topping and Gonzalo Muñoz – Race To Zero mobilizes actors outside of national governments to join the Climate Ambition Alliance, which was launched at the UNSG's Climate Action Summit 2019 by the President of Chile, Sebastián Piñera.

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