BSEA

BREAKWAVE ADVISORS

Maritime Decarbonization Monthly

May 2023

Thought of the Month:

"On the way to set a net zero future"

The Big Picture

The International Chamber of Shipping (ICS), representing over 80% of the world's merchant fleet, has **submitted detailed proposals for the next round of IMO negotiations**. The IMO will meet in July with the aim of increasing decarbonization targets and setting a course for a net-zero future. The ICS's proposals support the development of a **Global Fuel Standard** (GFS) as a technical measure to reduce the greenhouse gas (GHG) intensity of marine fuels. The GFS would initially target a 5% reduction in GHG by 2030, followed by more aggressive reductions in the coming decades. The reduction plan was developed in conjunction with industry experts to ensure that it can be practically implemented, and there are planned provisions that require verification and reporting of fuel carbon intensity to ensure compliance. Ships would be required to obtain and maintain a valid Fuel Oil Non-Availability Report (FONAR) if compliant low-carbon fuels are unavailable.

What's New

India's Ministry of Ports, Shipping & Waterways (MoPSW) is showing dedication to green shipping by **providing financial incentives** to companies that adopt green technologies and reduce their carbon footprint. The government initiative will provide up to 30% of the financial support needed for new projects through **subsidies**. The program's goal is to incentivize the adoption of alternative fuels. India has recently been pushing decarbonization and fleet modernization through other programs and announced earlier this year that it would impose age restrictions on Indian-flagged and owned ships. India also has plans to develop hydrogen production and distribution infrastructure that will play an important role in green shipping operations in India.

Our View

The shipping industry is making progress in the area of energy efficiency, with many newly built ship designs geared to maximize energy-saving potential via new technologies. Alternative fuels have taken the limelight, but **hull design and improvements to onboard systems play an essential role in reducing the carbon footprint of shipping**. Many solutions can reduce the fuel consumption of **new and existing vessels**, examples include air lubrication technology, Flettner rotors, onboard carbon capture and storage, hybrid power systems, and digitalization. It's not just well-meaning owners and customers that have been driving the change, the IMO's regulations have been influential in fast-tracking these technologies. LNG and energy efficiency improvements may be the practical choice at the moment, but they are **interim solutions** to the carbon problem. With green legislation and regulation being pushed in every corner of the globe, the need for carbon reduction will only intensify with time. Eventually, the industry will adopt alternative fuels, a conclusion many have come to, but until then, there is an impressive spectrum of options for reducing fuel consumption and GHG emissions.

Industry Trends

Fuels

Mitsubishi Shipbuilding, a part of Mitsubishi Heavy Industries (MHI) Group, has delivered an ammonia fuel supply system for large, low-speed two-stroke marine engines to **Japan Engine Corporation** (J-ENG). The ammonia fuel system supplied by Mitsubishi Shipbuilding has been installed at the Nagasaki District facility and provides the ammonia fuel used to conduct the tests.

Biofuels

Oil and gas major **ExxonMobil** signed an agreement to supply German liner major **Hapag-Lloyd** with B30 marine biofuel oil in the Amsterdam-Rotterdam-Antwerp (ARA) region. Biofuel is an integral part of Hapag-Lloyd's sustainability journey, as biofuel blends can make a meaningful contribution to decarbonization as a drop in fuel. The solution's 'drop in' quality means that little or no modification is needed to the existing vessel's infrastructure to switch to a biofuel. In 2022, the company used more than **120,000 tons of biofuel** across almost all its ships.

Green Hydrogen

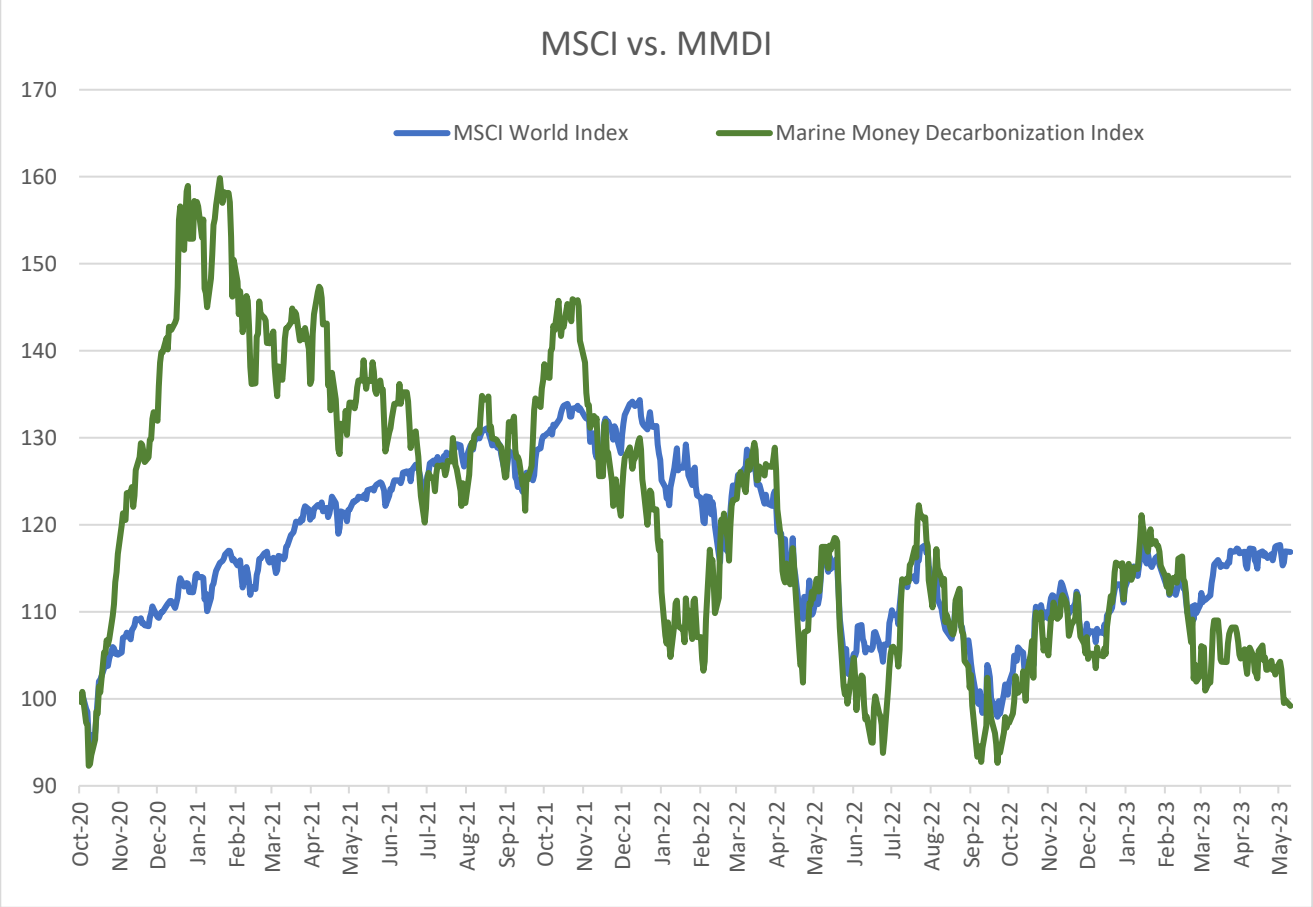
The Skies and Seas Hydrogen-fuels Accelerator (SASHA) Coalition is being launched by Lord Deben, chair of the UK's independent Committee on Climate Change. The coalition is bringing together the shipping and aviation industries to form one unified voice, so they have more significant influence over policy and can send a clear demand signal that green hydrogen and direct air capture (DAC) are decarbonization pathways in these sectors.

New Vessel Design

South Korea's shipbuilder **Samsung Heavy Industries** (SHI) has announced the development of innovative LNG carriers and containerships during the Samsung Technical Seminar in Athens, Greece. The company unveiled its '3 Cargo Tank LNGC' and 'Eco Container Ship' products. SHI said the '3 Cargo Tank LNGC' is designed to increase efficiency, adding that the method makes it possible to improve the boil-off rate by more than 5%. Maintenance costs are also expected to be reduced. SHI revealed that this design method was jointly developed with France's **GTT**. The design also won Approval in Principle (AiP) from **Lloyd's Register** of England.

Green Ships

The world's largest boxship lessor, **Mærsk McKinney Møller**, working with **Seaspan,** revealed the design of an ammonia-powered 15,000 TEU container vessel. The ship measures 350m in length between perpendiculars and 53.6m in breadth. Its design incorporates a dual-fuel engine that runs on very low sulfur fuel oil (VLSFO) and ammonia. The ship is the company's first carbon-neutral vessel and will join its fleet in the summer of this year.



Relevant Prices

Fuel Prices	Price	YOY
Crude Oil, Brent	72.83 $/bbl	-40.7%
Natural Gas, Henry Hub	2.29 $/MMbtu	-71.9%
LNG, Korea/Japan	9.37 $/MMbtu	-58.6%
Coal, Rotterdam	121 $/mt	-56.1%
VLSFO, Rotterdam	529 $/mt	-39.1%
Methanol, China	28.59 $/mt	-26.8%
Palm Oil, Malaysia	28.55 $/mt	-50.5%

Stock Indices		
Marine Money Decarbonization Index	299	-15.9%

Carbon Emission Allowances		
EU Emission Allowances	84.45 $/kt	-5.1%
UK Emission Allowances	64.71 $/kt	-36.8%

Note: All prices as of last closing prior to the report; Sources: Bloomberg and Breakwave Advisors

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