

Maritime Decarbonization Monthly

April 2022

Thought of the Month:

"New tools for tracking emissions will be key for the Green Future of Shipping"

The Big Picture

The International Maritime Organization (IMO) has been under increased pressure in the month of April to change its strategy for reducing greenhouse gas (GHG) emissions from ships. A year ago, the only country to call for more aggressive IMO action was the South Pacific nation of Kiribati, calling such strategy an existential threat to the country. Now Australia, Canada, Jamaica, Japan, New Zealand, Norway, Solomon Islands, United Kingdom, and the United States joined the push **for the IMO to revise its 2050 target to ensure shipping achieves zero-emissions by 2050**. Currently the IMO proposal is for just a 50% reduction by 2050.

In the meantime, a new market-based measure to reduce shipping emissions in the medium term has been put forward to the IMO by a powerful group led by China and supported by Argentina, Brazil, South Africa, and the United Arab Emirates. The proposal, submitted earlier this month, will establish the International Maritime Sustainability Funding and Reward (IMSF&R) mechanism as an intermediate measure to reduce GHG emissions from ships. The IMSF&R mechanism calls for taxing the high CO2 emitters and use the associated funds to reward the low CO2 emitters.

What's New

Tools for tracking shipping emissions are now a reality. A new joint project by the International Council on Clean Transportation (ICCT) called Fugitive Methane Emissions from Ships (FUMES) in collaboration with Danish-based Explicit and the Netherlands Organization for Applied Scientific Research (TNO), will use a combination of **onboard sensors and drones** to measure methane emissions from ships. Separately, ClassNK, the Japanese classification society, released an advanced emissions tracking tool, the ClassNK ZETA (Zero Emission Transition Accelerator) for **visualizing CO2** emissions from ships.

Our View

Green corridors, defined as zero-emission maritime routes between two or more ports, **will play a vital role in speeding up the decarbonization process** and will lead to milestone actions to pave the way for a smooth transition. **Singapore**, one of the most critical shipping countries globally, recently announced its decision to sign up for the Clydebank Declaration, the shipping green corridor movement first announced during COP 26 in Glasgow last November to support the establishment of green shipping corridors. **The ports of Los Angeles and Shanghai** have also **committed** to creating a **green shipping corridor** on one of the world's busiest container shipping routes, and the Belgian port of Antwerp and the Canadian port of Montreal signed a cooperation agreement to support the creation of a green shipping corridor in the North Atlantic. Green corridors are critical to increasing investor confidence in developing the required infrastructure for decarbonizing shipping.

Industry Trends

Fuels

April continued with increased activity of biofuel trials, while ammonia fuel supply is in the spotlight due to major developments in its establishment as a long-term green fuel of choice.

- Ocean Network Express completed the third trial of marine **biofuel** onboard the Singapore-flagged NYK Fuji, while ANL, a subsidiary of French container and logistics shipping giant CMA CGM Group, has completed the first biofuel trial on a containerized shipping vessel within Oceania.
- NYK and its affiliate Sanyo Kaiji Kabushiki Kaisha has begun testing of navigation using biodiesel in tugboats supplied via ship-to-ship bunkering at the Port of Nagoya, a first for Japan.

The Synthetic LNG trial cuts

- Trial results from the first containership to run on a **mix of conventional and synthetic LNG** showed emissions reduction of 34% and 27% compared to HFO and LNG operation, respectively. MAN Energy Solutions said that measurements were taken on the 1,036-TEU boxship ElbBLUE as it operated on a 50/50 mix of liquefied natural gas (LNG) and synthetic natural gas (SNG, also known as e-LNG, synthetic LNG) on a voyage from Germany to Rotterdam.

Ammonia Fuel

Last month was characterized by major alliances for the promotion of **ammonia** as an alternative marine fuel. Norway's **Yara** group teamed up with the Society of Gas Marine Fuel to promote ammonia fuel. Yara established the Yara Clean Ammonia (YCA) unit in 2021. This unit focuses on capturing growth opportunities in emission-free fuel for shipping and power plants, carbon-free food production, and ammonia for power and industrial applications.

In addition, The **Maritime, and Port Authority of Singapore** and Japanese shipping company **Kawasaki Kisen Kaisha (K-Line)** will participate in the feasibility study being conducted by the SABRE consortium to investigate ship-to-ship based ammonia bunkering in the Port of Singapore, the largest bunkering port in the world.

Lastly, Japanese energy companies **ENEOS, JERA, and JFE** announced they will investigate establishing a hydrogen and ammonia supply base at the Keihin Waterfront Area in Kanagawa Prefecture.

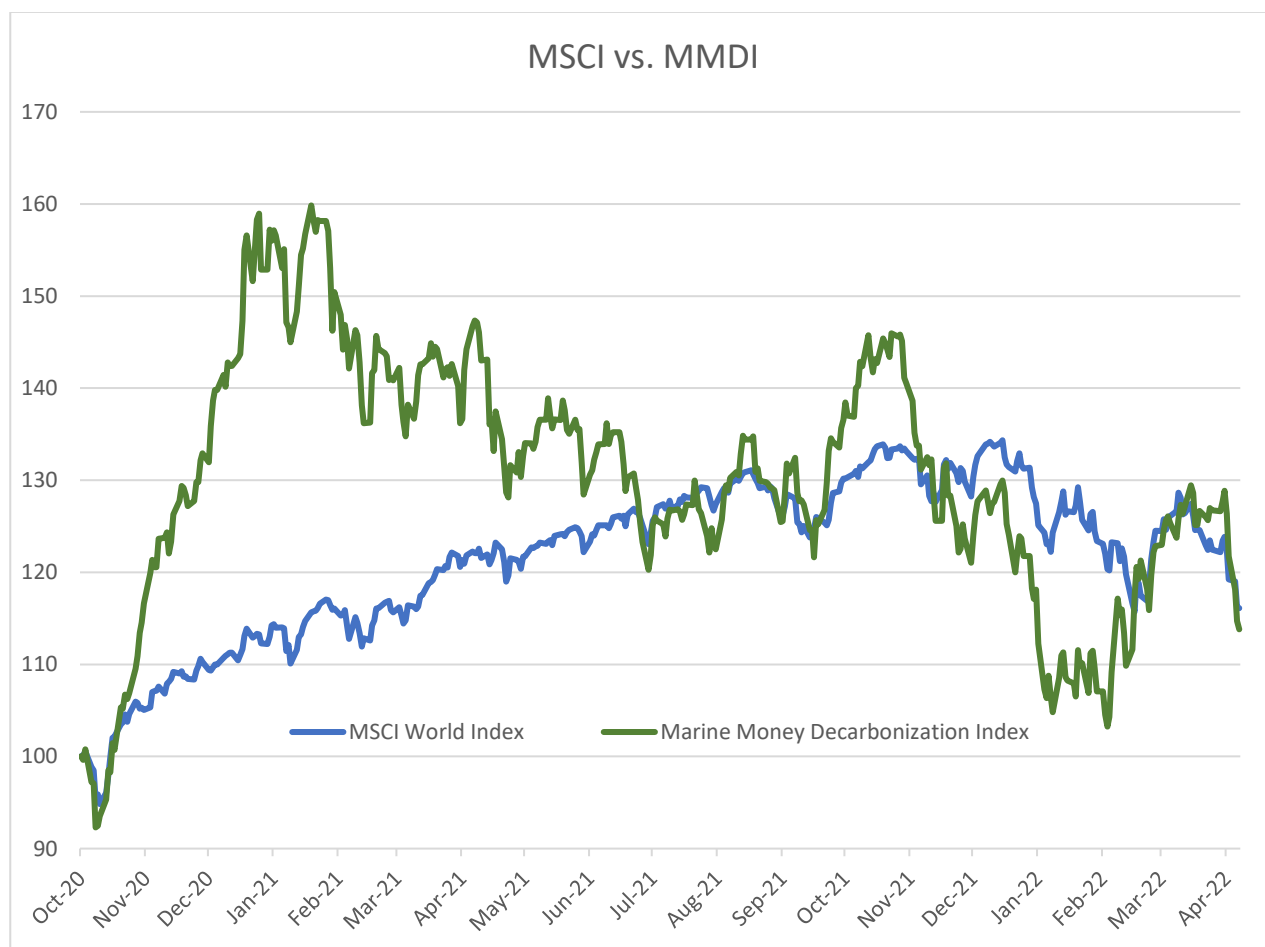
Technology

During the past month there was an increase in the emergence of new designs for low-carbon hydrogen/ammonia and liquefied carbon dioxide (LCO₂) carriers.

- Daewoo Shipbuilding & Marine Engineering (DSME) and Korea National Oil Corporation (KNOC) have teamed up to develop low carbon hydrogen/ammonia and liquefied carbon dioxide (LCO₂) carriers.
- Japanese shipping company **Mitsui O.S.K. Lines (MOL)** has completed a concept study of an ammonia/liquefied CO₂ carrier to flexibly meet future transport demand.
- **DSME** received design approval for the largest liquefied CO₂ carrier yet developed as part of the South Korean shipbuilder's efforts to build a leadership role in the emerging sector.

Green Ships

The world's **first ammonia powered VLCC** is on track for launch in 2025. Three of the partners in the project **Lloyd's Register, Samsung Heavy Industries,** and Malaysian shipping company **MISC,** through its Singapore-based tanker company AET, signed the memorandum of understanding calling for the dual-fuel ammonia VLCCs to enter service in late 2025 and early 2026.



Relevant Prices

Fuel Prices

	Price	YOY
Crude Oil, Brent	109.88 \$/bbl	176.7%
Natural Gas, Henry Hub	7.07 \$/MMbtu	143.0%
LNG, Korea/Japan	24.82 \$/MMbtu	188.6%
Coal, Rotterdam	259 \$/mt	245.3%
VLSFO, Rotterdam	821 \$/mt	71.8%
Methanol, China	39.98 \$/mt	7.8%
Palm Oil, Malaysia	70.59 \$/mt	73.8%

Stock Indices

Marine Money Decarbonization Index	357	-20.5%
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Carbon Emission Allowances

EU Emission Allowances	89.41 \$/kt	77.0%
UK Emission Allowances	101.66 \$/kt	78.9%

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

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