

Maritime Decarbonization Monthly

March 2022

Thought of the Month:

“R&D Funding: The pathway to the acceleration of shipping decarbonization”

The Big Picture

A meaningful way to accelerate the development of technologies for zero carbon shipping is **increasing research and development (R&D) funding** from government sources. The **World Shipping Council**, along with various maritime nations and organizations, has sent several amendments to the IMO to motivate the adoption of a **\$5bn maritime R&D fund**. In a joint submittal to the IMO MEPC 78, the sponsors have further detailed the proposal for an International Maritime Research and Development Board (IMRB) and for an International Maritime Research and Development Fund (IMRF) to ensure the equitable use of funds as well as fair and equal access to patents and technologies globally.

What’s New

A new study by **Core Power**, a developer of nuclear propulsion for commercial ships, brought to light interesting research findings on how the U.S. maritime industry can pave the way for shipping decarbonization with advanced **nuclear technology**. The US would be in the unique position to become an exporter of this technology to trusted partner nations, like the UK. **Core Power** sees nuclear technology playing a role outside of the engine room as well. Core Power explains *“Our concept design is for an offshore facility partnering advanced nuclear power with an offshore ammonia production facility, which will create green ammonia from abundant seawater and air. No emissions would come from the plant.”* Could **nuclear technology** be a solution to the transition to green fuels and zero emissions shipping? **Bill Gates** and 40+ shipowners who control over 4,000 ships seem to think so, backing Core Power to transform their nuclear concepts into reality.

Our View

Funding for R&D remains a bottleneck for a smooth transition to green shipping. Although new technologies can be developed, the near- and medium-term financial viability combined with the uncertainty brought on by the recent geopolitical turmoil **makes it more difficult for private enterprises to fund such initiatives**. Thus, a government-sponsored funding scheme becomes increasingly important catalyst for new technologies to be developed and tested without the shadow of financial underperformance. With politicians and political influencers calling for ramping up green technology and adoption of zero-emissions practices across virtually all industries, private enterprises cannot shoulder the full burden of extensive R&D, trials and testing, implementation, and other costs associated with acting as a ‘first mover’ – typically a painful and unprofitable position for investors and operators. The **recent initiatives** towards government support for development of green shipping technologies is a start, but more is needed in order to truly develop, innovate and apply new technologies for shipping decarbonization.

Industry Trends

Fuels

In March, several **biofuel** trials by major shipping players took place, while the emergence of **Bio-LNG** became a hot topic of discussion amid the decarbonization push. Engine manufacturers are already designing and building LNG dual-fuel engines that in addition to using bio and renewable synthetic LNG will be capable of using the hydrogen based future fuels being discussed as well.

- **Seenergy Maritime Holdings Corp.** announced that it has successfully completed marine biofuel trials in cooperation with one of its major charterers, **NYK Line**, on one of the Company's Capesize Vessels.
- **CMA CGM**, with the support of the Maritime and Port Authority of Singapore (MPA), started biofuel bunkering in Singapore as part of its global trial to scale-up the wider adoption of the clean energy. Its 10,640 teu vessel, APL Paris, was the first of the group's vessels on trial to be bunkered with biofuel in Singapore this month.

Recently, the availability of biofuels has gradually started to be commercially viable:

- Suppliers are **quoting prices** for delivery of **bioLNG bunkers in Rotterdam**, the biggest marine fuel bunkering hub in Europe, and several North Sea and Baltic Sea ports.
- Dutch marine biofuels supplier **GoodFuels** has opened an office in Singapore to serve demand for sustainable marine biofuel in the Asia-Pacific region. GoodFuels says this new presence in the region will enable it to respond to the growing demand for its biofuels.

Investments in **hydrogen and ammonia** technologies continued:

- The Norwegian Minister of Energy announced that Norway would invest NOK 200 million (\$22.41m) in HYDROGENi, a new center for energy research dedicated to hydrogen and ammonia. The center has over 50 industrial and academic Norwegian and European partners. In addition, innovation from the center's research is to be a key driver of the green shift in Norway.

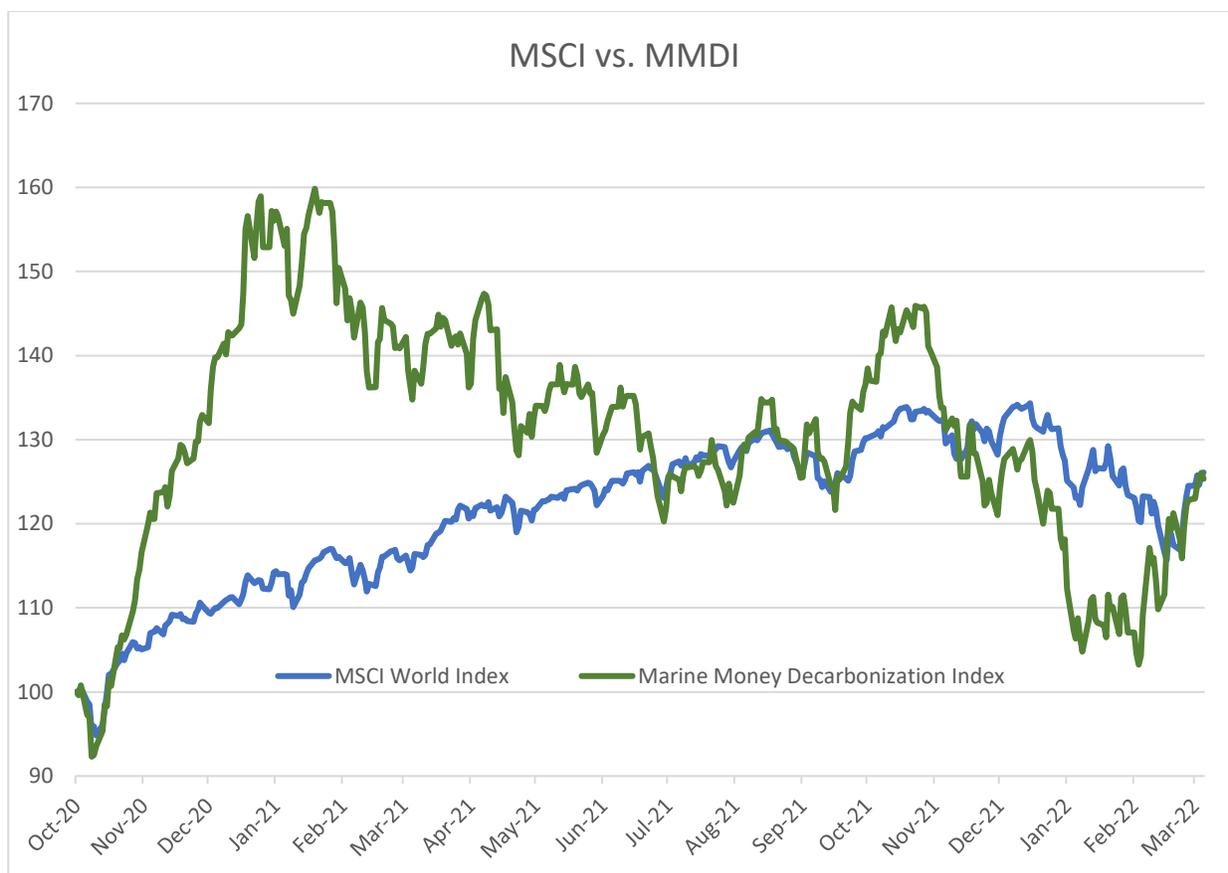
Technology

We see more and more collaborations for the enhancement of **ship designs**.

- Six Japanese companies have agreed to jointly design methanol fueled-tankers: **Mitsui OSK Lines (MOL)**, **MOL Coastal Shipping**, **Tabuchi Kaiun Co**, **Niihama Kaiun Co**, **Murakami Hide Shipbuilding**, and **The Hanshin Diesel Works**, have agreed to form a strategic alliance for the development of a **methanol**-fueled domestic tanker.
- Norwegian ship design company **Breeze Ship Design** will design an ammonia-powered oil tanker based on an existing 110,000 dwt Aframax vessel and is a part of the Norway-backed **Green Shipping Program**.

Green Ships

The Norwegian shipowner Egil Ulvan Rederi is pressing ahead with its zero-emission hydrogen-fueled bulk carrier project, for delivery in 2024, having secured approval in principle (AiP) from class society Lloyd's Register (LR). Named With Orca, the vessel will be fully zero-emission in all operations, according to LR.



Relevant Prices

Fuel Prices

	Price	YOY
Crude Oil, Brent	113.99 \$/bbl	187.1%
Natural Gas, Henry Hub	5.44 \$/MMbtu	107.4%
LNG, Korea/Japan	33.88 \$/MMbtu	393.4%
Coal, Rotterdam	280 \$/mt	297.2%
VLSFO, Rotterdam	876 \$/mt	87.6%
Methanol, China	46.62 \$/mt	26.8%
Palm Oil, Malaysia	62.21 \$/mt	62.7%

Stock Indices

Marine Money Decarbonization Index	388	-8.7%
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Carbon Emission Allowances

EU Emission Allowances	90.72 \$/kt	95.2%
UK Emission Allowances	99.98 \$/kt	68.0%

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

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