

# Methanol Fuelled Vessels on the Water and on the Way

2023

To learn more about each project, click on the project title.

## Japan (December 2023)

Tsuneishi Shipbuilding Co., Ltd has ordered three MAN B&W 7G50ME-C9.6-LGIM main engines in addition to the three 81 200 DWT bulk carriers for Danish shipping company J. Lauritzen. MITSUI E&S will build the engines in Japan.

## China (December 2023)

Lloyd's Register Approves Methanol-Fueled Aframax Oil Tanker Design with AiP  
Qingdao Beihai and China Shipbuilding Development Company (CSDC) have brought forth a groundbreaking 250-meter long vessel, featuring an MAN ES two-stroke dual-fuel engine, equipped with methanol capability.

## United States (December 2023)

Overseas Shipholding Group (OSG) has lined up all four Alaskan-class tankers for lifecycle engine upgrades under a contract with Germany's MAN Energy Solutions. The vessels Alaskan Explorer, Alaskan Frontier, Alaskan Legend, and Alaskan Navigator, all approaching 20 years in age, will see the 48/60 type engines refitted to include readiness for methanol fuel.





## **China (December 2023)**

Hudong-Zhonghau Shipbuilding has delivered the CMA CGM Bahia. The dual-fuel containerships operating on the South America route is 145,650 dwt with a maximum nominal capacity of 13,200 TEUs.

## **Singapore (December 2023)**

Stellar Shipmanagement Services Pte has taken delivery of the 4,000 dwt IMO Type 2 methanol bunker vessel the MT Maple. The vessel, classed by Bureau Veritas, was built by Sasaki Shipbuilding Co.

## **Netherlands (December 2023)**

Aasen Shipping orders three 9,500-dwt hybrid-powered methanol-ready cargo ships to be built at the Royal Bodewes shipyard with Wärtsilä equipment. The equipment is scheduled for delivery to Royal Bodewes in December 2025 and 2026.

## **China (December 2023)**

AP Moller-Maersk selects CSSC Huangpu Wenchong Shipbuilding Co., Ltd. to build up to 15 3,500 TEU methanol dual-fuel-powered feeder containers. The value of the order is just over \$1 billion.



# MAERSK



### **Finland (December 2023)**

Mein Schiff 7, a methanol-ready cruise ship ordered by TUI Cruises, has been launched in Finland. The float out of the newbuilding began at the Meyer Turku shipyard when the dry dock water valves were opened and the flooding of the dry dock started.



### **South Korea (December 2023)**

Maersk launched the first of its 18 large methanol-enabled vessels currently on order. The container vessel built by Hyundai Heavy Industries has a nominal capacity of 16,000 containers (TEU).



### **China (November 2023)**

Arkona Allied Container says ten methanol-ready small containerships are under construction, featuring the new 'Enviro feeder' design with low bunker consumption. The units are scheduled to be delivered in 2025 and 2026.



### **Europe (November 2023)**

X-Press Feeders' 14 methanol-fuelled newbuildings totaling 22,774 TEU, are under construction at Chinese yards and bound for European waters.



### **United States (November 2023)**

Wärtsilä Technology Group signed a strategic partnership agreement to develop the first high-speed, zero-emission ferries in the United States.

### **China (November 2023)**

ONE orders twelve 13,000 TEU methanol dual-fuel boxships that will be split between Jiangnan Shipyard and Yangzijiang Shipbuilding, slated for delivery in 2026 and 2027.

### **China (November 2023)**

At the Guangzhou Shipyard, Proman Stena welcomes final pair of 49,000-dwt methanol tankers in Proman Stena's initial six-strong methanol-fuelled tanker fleet.

### **China (November 2023)**

Langh Ship welcomes first 7,800 dwt newbuild multi-fuel, methanol-ready MPP dry cargo ship at Wuhu Shipyard in Zhoushan, China. The main engine, delivered by Wärtsilä, is a 4500 kW dual-fuel engine.

### **Netherlands (November 2023)**

Aasen Shipping has ordered three new hybrid powered methanol-ready self-dischargers to Royal Bodewes. Delivery of the vessels is set for December 2025, April 2026 and September 2026.



### **China (November 2023)**

MAN engines to power Wallenius Wilhelmsen's four 9,300 methanol dual-fuel car carriers that will be built at the Jinling Shipyard. The ships are scheduled for delivery from mid-2026. The order contains options for a further eight such vessels.



### **China (November 2023)**

WinGD has been contracted to supply X-DF-M methanol-fueled engines for a series of six container vessels to be built at Yangzijiang Shipbuilding. The 9,000 TEU vessels will each be powered by an X82DF-M engine built by HD Hyundai Heavy Industries' Engine & Machinery Division (HHI-EMD).



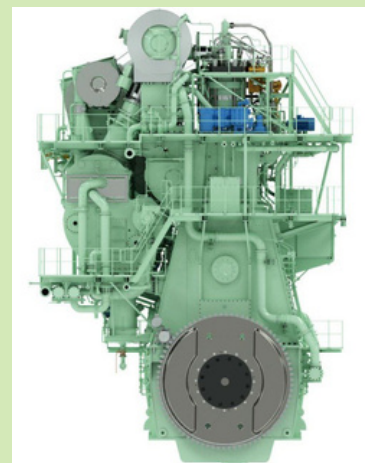
### **Singapore (November 2023)**

KCC signs a deal to equip four new ships with Silverstream air lubrication technology that reduces methanol fuel consumption and the subsequent CO2 emissions.



### **China (November 2023)**

CMES has ordered the world's first methanol-powered engine for the VLCC segment  
China Merchants Energy Shipping (CMES) has ordered a MAN B&W 7G80ME-LGIM engine in connection with the construction of a first methanol dual-fuel VLCC (Very Large Crude Carrier). Dalian Shipbuilding Industry Co (DSIC) will build the ship, which is scheduled to be delivered in April 2026



### **China (October 2023)**

JP Morgan confirms order for two 49,800 deadweight dual-fuel Methanol Chemical IMOII Medium-Range (MR) Newbuilds, to be constructed at Guangzhou Shipyard, in China. Both vessels are scheduled for delivery in 2026 on time-charter to MI member TotalEnergies.

### **Undisclosed (October 2023)**

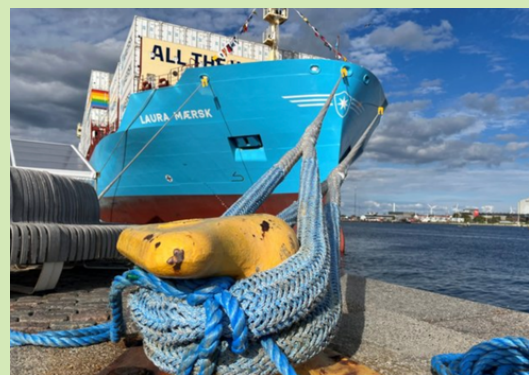
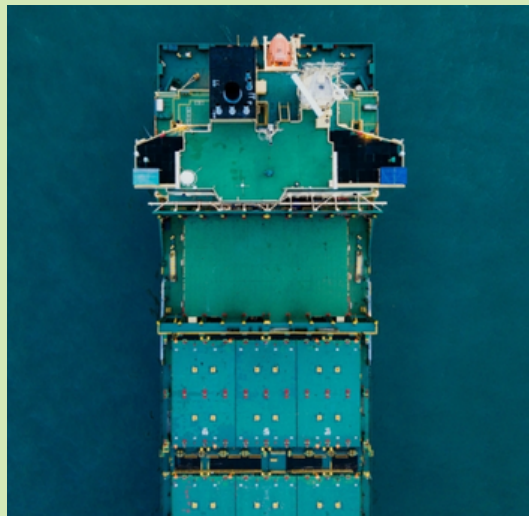
Maersk hunts for shipyards for a new batch of methanol ships, another 10 to 15 container ships with dual fuel methanol engines. The shipping giant already has 24 methanol ships in the order book. They range from a few thousand teu to upwards of 16,000 teu.

### **Japan (October 2023)**

TSUNEISHI SHIPBUILDING signs contracts with ITOCHU Corporation and Safe Bulkers to order two KAMSARMAX methanol-fueled bulk carriers. The ships are scheduled to be completed in the latter half of 2026 to the first half of 2027.

### **Greece (October 2023)**

Athenian Sea Carriers orders four LNG and methanol-ready chemical tankers at the Chinese shipbuilding company Wuchang Shipbuilding Industry Group. The vessels, with a deadweight of 18,500 tons (dwt), are slated for delivery in 2025.



### **South Korea (October 2023)**

The first of twelve green methanol-powered containerships ordered by Maerks has been launched at Hyundai Heavy Industries. The vessel measures 350 meters in length and 53.5 meters in beam width, with a capacity to carry 16,200 TEUs.



### **Netherlands (October 2023)**

Lloyd's Register announces it has awarded boatbuilder Feadship AiP for its multi-fuel system to be used on large yachts enabling operation on methanol.



### **Japan (October 2023)**

Tsuneishi wins landmark order for methanol-fuelled boxships from an undisclosed owner to build four 5,900 teu ships, after previously winning orders for methanol dual-fuel bulkers. No further details have been disclosed about the latest order except that the vessels will feature a Mitsui-MAN B&W 6G80ME-C10.5- LGIM-EGRTC, which will be the first in Japan to be installed on a ship.



### **Finland (September 2023)**

Wärtsilä confirms that it will power the "world's first methanol fuelled hybrid RoRo vessels." The 147m long NewMax class ships are expected to be delivered to Stena RoRo in 2025 before transfer to Stena Line.





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## **Japan (September 2023)**

Kambara Kisen has ordered a methanol-powered bulk carrier and signed a time charter deal for the vessel with MOL's subsidiary MOL Drybulk. It is slated for delivery in 2027.

## **Japan (September 2023)**

Hitachi Zosen Marine Engine has decided to invest in methanol supply systems and produce methanol engines. HZME has received an order from MAN for a methanol-compatible dual-fuel test engine and conducts technical verifications through manufacturing and onshore testing.

## **Japan (September 2023)**

HD Hyundai Heavy Industries - Engine & Machinery announces it signed a contract for 16 sets of HiMSEN methanol dual-fuel engines and selective catalytic reduction systems with Tsuneishi Shipbuilding in Japan. Scheduled for delivery starting in January 2025.

## **China (September 2023)**

Diana Shipping signs LOI to order through Marubeni Corporation two 81,200 dwt methanol dual-fuel new-building Kamsarmax dry bulk vessels, for a purchase price of \$46 million each, built at Tsuneishi Group Shipyard, expected to be delivered by the second half of 2027 and the first half of 2028 respectively.





## **China (September 2023)**

Jinling Shipyard bags four tankers from Sirius. The vessels will be prepared for methanol propulsion allowing it able to reach a goal of Zero CO<sub>2</sub> emissions and almost non-existent NO<sub>x</sub> emissions. The first vessel delivery is scheduled in 2026.

## **China (September 2023)**

Vale orders up to twelve VLOCs powered by methanol, reportedly to be placed entirely with Chinese shipyards like Yangzijiang Shipbuilding and Hunli Heavy Industries.

## **China (September 2023)**

Headway Technology Group signs a deal to provide a methanol fuel supply system for a dry bulk carrier. The company has agreed to supply the system for a 10,000 DWT bulker to be owned by China National Energy Group. The vessel is under construction in Hubei, classed by CCS, and the fuel supply system will be delivered at the end of this year.

## **China (September 2023)**

China Merchants Energy Shipping moves forward with the order of the world's first methanol dual-fuel Very Large Crude Carrier (VLCC). Dalian Shipbuilding Industry Group Co. has been commissioned to build the 306,000-ton methanol dual-fuel giant for \$107M

The delivery of the vessel should be no later than April 2026.



### **Finland (September 2023)**

Auramarine Ltd has secured an order to supply methanol fuel supply systems for three 15,000 DWT hybrid tankers for Swedish shipping company Terntank. The ships are being built at China Merchants Jinling Shipyard (Yangzhou), with the first vessel of the series set to be delivered in March 2025.

### **Europe (September 2023)**

Maersk signs an agreement with Equinor to secure supply of green methanol for Maersk's first methanol-powered feeder vessel during its initial months of operation from September 2023 and into the first half of 2024.

### **United States (September 2023)**

Disney Cruise Line says the former Global Dream will debut as the Disney Adventure, and confirmed its plans to deploy the ship to Asia when it starts revenue service in 2025. The ship will have capacity for approximately 6,000 guests and will come methanol-ready.

### **Denmark (September 2023)**

Naming ceremony held in Copenhagen for world's first methanol dual-fuel containership the Laura Maersk, featuring the ship's godmother EU President Ursula van der Leyden.



### **China (September 2023)**

OceanPal invests in methanol-ready chemical tanker contracts for two 6,600 dwt stainless steel chemical tankers. RFSea Infrastructure II AS has secured two newbuilding contracts to construct vessels at Wuhu Shipyard in China. Two vessels are anticipated to arrive in the fourth quarter of 2025 and the first quarter of 2026.

### **France (September 2023)**

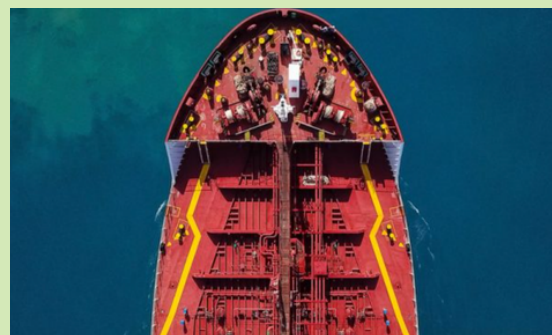
JP Morgan orders two advanced dual-fuel methanol carriers with China's Guangzhou Shipbuilding International (GSI). The methanol carriers, to be delivered in 2026, will be employed on a time charter with France's energy giant TotalEnergies.

### **Sweden (August 2023)**

Wärtsilä has been contracted by Stena Line to carry out and convert some of its vessels to operate with methanol fuel. The conversions will include the fuel supply system and engine modifications, as well as integrating the new installations with the ships' existing systems.

### **South Korea (August 2023)**

HJ Shipbuilding & Construction Names Two 5,500 TEU Container Ships, commissioned by a European shipowner. Named "Zim Danube" and "Zim Ganges," the ships are two of the four eco-friendly container ships ordered after HJ Shipbuilding & Construction's major shareholder change in August 2021, marking its first such order in six years.





## **China (August 2023)**

COSCO Shipping Special Carriers welcomes its second methanol-ready 68,000-ton ice-class multi-purpose pulp ship, named Green Kotka, built by Dalian COSCO KHI Ship Engineering Co., Ltd. (DACKS) shipyard.

## **Egypt (August 2023)**

The world's first containership owned by Maersk, powered by green methanol has reached East Port Said, Egypt. The 2,100 TEU feeder was built by South Korea's Hyundai Mipo Dockyard and delivered in July and runs on MAN Energy Solutions' G50 or G95 dual-fuel engine capable of running on green methanol or conventional fuel.

## **Denmark (August 2023)**

Svitzer launched the second phase of its project to design the world's first methanol hybrid fuel cell tug, with the aim of delivering a self-sustained tug with longer endurance and fewer operational constraints than a purely battery-powered vessel.

## **China (August 2023)**

China launches "Eco Maestro," its first-ever methanol dual-fuel container ship at New Dayang Shipbuilding Company, a subsidiary of Sumec Shipbuilding. Anticipated to commence service in the second quarter of 2024, the vessel will navigate feeder routes in Northern Europe.



### **China (August 2023)**

CCS issues an AiP to Wuhan Rules and Research Institute to Zhejiang Seahead Ship Design and Research Institute to design a methanol bunkering ship in China.

### **Norway (August 2023)**

Ocean Yield invests in four methanol-ready LR1 product tankers constructed at Guangzhou Shipyard International (GSI) in China for 2026 and 2027 delivery.

### **Germany (August 2023)**

Hapag-Lloyd enters a Conversion Commitment Agreement with MAN and Seaspan to equip its fleet with engine retrofit kits to run on methanol. MAN will deliver 15 engine retrofit kits capable of running on green methanol, with option for 45 additional retrofits.

### **Singapore (August 2023)**

Hafnia orders four 49,800 deadweight dual-fuel methanol chemical IMOII Medium-Range (MR) tankers backed by TotalEnergies. The deal was signed with Guangzhou Shipyard International.

### **Norway (August 2023)**

Wallenius Wilhelmsen has signed a LOI with China Merchants Jinling (Jiangsu) for four 9,350 CEU (car equivalent units) methanol dual-fuel pure car and truck carriers. The LOI covers up to eight optional vessels, with deliveries of the first vessels starting from the second half of 2026.



### **France (August 2023)**

CMA CGM orders additional six 15,000 TEU container vessels which are being built at the Dalian Shipbuilding yard in China. Wärtsilä booked the order in Q2 2023.

### **Spain (July 2023)**

Freire Shipyard signed a contract with the French national institute for ocean science IFREMER for the construction of a new methanol-fuelled vessel. It will join the the French oceanographic fleet.

### **Taiwan (July 2023)**

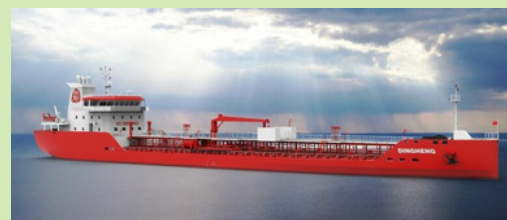
Evergreen Marine orders twenty-four methanol dual-fuel containerships, an investment of over \$5 billion. The construction deal has been divided between Samsung Heavy Industries (16) and Nihon Shipyard (8). The 24-strong newbuilding fleet is expected for delivery between 2026 and 2027.

### **Netherlands (July 2023)**

KOTUG Canada selected Türkiye's Sanmar Shipyards to build two RAsalvor 4400-DFM methanol-fuelled escort tugs to service the Trans Mountain Expansion Project (TMEP), the tugs will be able to run on both methanol and conventional marine fuel.

### **England (July 2023)**

London-based RFOcean has placed an order for four 6,600 dwt methanol dual-fuel stainless steel chemical tankers at Wuhu Shipyard in China.



### **Denmark (July 2023)**

MAN Energy Solutions signed a Conversion Commitment Agreement with Seaspn, in collaboration with Hapag-Lloyd to deliver 15 engine retrofit solutions for the conversion of vessels powered by individual MAN B&W S90-type fuel-oil-powered engines from the Seaspn and Hapag-Lloyd fleets to dual-fuel ME-LGIM engines capable of running on green methanol, with 45 optional engine retrofit solutions.

### **Denmark (July 2023)**

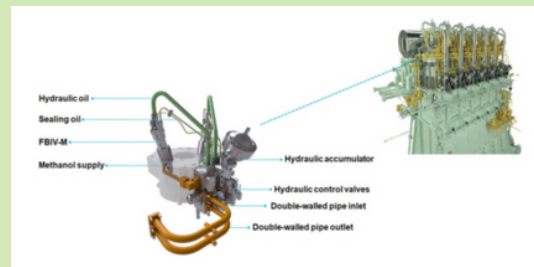
Maersk receives delivery of the world's first containership operating on green methanol, an HMD Hull 4168, built at Hyundai Mipo Dockyard Co. and Hyundai Heavy Industries Co. The 2,100 TEU boxship is now preparing to embark on its maiden voyage towards Copenhagen.

### **Denmark (July 2023)**

Ørsted and ESVAGT sign a second contract for a sister vessel to the world's first methanol-powered service operation vessel, announced in 2022. The SOV will be ready for launch in 2026.

### **China (June 2023)**

Danaos Corporation has been linked to a pair of methanol-fuelled new-build orders at Yangzijiang



### **China (June 2023)**

J. Lauritzen has ordered a third methanol dual-fuel 81,200 dwt kamsarmax bulk carrier from Tsuneishi Shipbuilding, also to be operated by Cargill.

### **Canada (June 2023)**

Algoma Central Corporation placed an order for two methanol-ready 37,000 dwt product tankers with Hyundai Mipo Shipyard in South Korea.

### **Denmark (June 2023)**

Maersk plans to retrofit an existing ships to dual-fuel methanol power capable of operating on green methanol. The retrofit, an industry first, will take place in 2024. Maersk said it aims to replicate the retrofit on sister vessels in starting in 2027.

### **China (June 2023)**

Cosco Shipbuilding Marine Technology Co. Ltd, signed an agreement with COSCO Shipping Heavy Industry Co., Ltd. for an order of methanol fuel supply systems for four 16,000TEU container ships.

### **Taiwan (June 2023)**

X-Press Feeders has ordered an additional six methanol 1,250 TEU container feeder ships, bringing their total to 14 dual-fuel methanol ships on order.

### **Sweden (June 2023)**

Wärtsilä has been contracted by Stena Line to carry out and convert some of its ferries to operate with methanol fuel. The conversions are scheduled to take place in 2025.



### **Netherlands (June 2023).**

Tune Chemical Tankers (TCT) has ordered up to four methanol-fuelled chemical tankers at Turkish Tersan Shipyard, with a capacity of 16,000 DWT. Delivery will be in 2025.

### **China (May 2023).**

SAIC Anji places an order for four methanol-ready car carriers. China Merchants Jinling Shipyard will build the 9,000 CEU vessels.

### **Ireland (May 2023).**

Stena Line announces that it is constructing two all-new hybrid propulsion vessels designed to run on methanol. Construction of the NewMax freight vessels will begin shortly with launch on the Irish Sea in 2024.

### **S. Korea (May 2023).**

Mitsui O.S.K. Lines (MOL) and Mitsubishi Gas Chemical Company sign an agreement for the long-term charter of a methanol carrier, which can run on either methanol or conventional heavy fuel oil. The vessel will be built at Hyundai Mipo Dockyard and is slated for delivery in 2025.

### **China (May 2023).**

China Merchants Energy Shipping Co., LTD. (CMES) disclosed that its Board of Directors approved the construction of two new generation energy-saving and environment-friendly AFRAMAX oil tankers with methanol-ready design.





## **United Kingdom (April 2023)**

RWE and Acta Marine plan to deploy two “green” service operation vessels (SOV), the first in the world to be built capable of being powered by methanol and batteries. Operation begins in the Port of Grimsby in early 2025-2026.

## **China (March 2023)**

COSCO placed orders for four 16,000 teu methanol-fueled ships at its affiliated yard in Yangzhou for an undisclosed price basis delivery in 2025.

## **Singapore (March 2023)**

Consort Bunkers has signed a contract with China Merchants Industry Holdings (CMHI) Jinling for a series of six 6,500-dwt methanol fuels new buildings, to be delivered in 2025

## **Denmark (March 2023)**

J. Lauritzen has signed a letter of intent with Tsuneishi Shipbuilding, for the construction of at least two methanol dual-fuel 81,200 DWT Kamsarmax bulk carriers. The vessels have been ordered in partnership with Cargill, which will operate the vessels for a period of at least seven years.

## **China (March 2023)**

China State Shipbuilding Corporation has signed a cooperation agreement with CMA CGM Group to produce 16 large methanol dual-fuel container vessels worth more than 21 billion yuan (about 3 billion U.S. dollars).



### **Netherlands (March 2023)**

WinGD has announced that it will supply 10X92DF-M methanol-fuelled engines to four 16,000 TEU containerships for COSCO SHIPPING Lines to be delivered by 2025

### **Finland (March 2023)**

Neste announced a partnership with Terntank Rederi A/S to time charter two lower-emission methanol and wind assistance-ready product tankers. Deliveries are planned for 2025/2026.

### **South Korea (March 2023)**

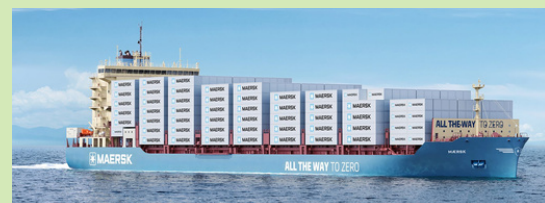
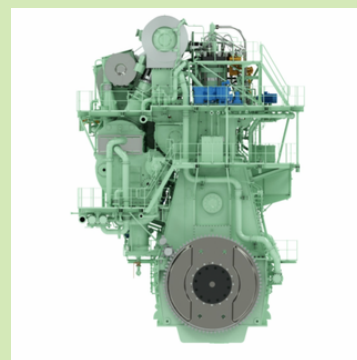
Hyundai Samho Heavy Industries Co. and HJ Shipbuilding & Construction Co. (HJSC) ordered seven and two MAN B&W G80ME-LGIM methanol dual-fuel engines in connection with the construction of 9 × 9,000 TEU container vessels for HMM Co.

### **Japan (March 2023)**

Mitsui OSK Lines, MOL Coastal Shipping, Tabuchi Kaiun, Niihama Kaiun, Murakami Hide Shipbuilding, and Hanshin Diesel Works will build a methanol-fuelled coastal tanker slated for delivery in December 2024.

### **Denmark (March 2023)**

Maersk unveiled the design for its first green methanol-powered containership; 2,100 TEU capacity feeder ship, the first of nineteen carbon-neutral ships.



### **China (March 2023)**

Wuhu Shipyard launched construction on SAL Heavy Lift's first two 14,600 dwt vessels, forming part of a fleet of six Orca-class vessels equipped with dual-fuel engines that run on methanol.



### **Germany (March 2023)**

Lürssen Yachts unveiled a megayacht powered by methanol. Dubbed Project Cosmos, the yacht's construction is ongoing and expected to be completed by 2025.



### **Japan (March 2023)**

ONE places orders for ten methanol- and ammonia-ready boxships. The new container vessels will each have a carrying capacity of more than 13,700TEUs, Expected to be delivered between 2025 and 2026.



### **Finland (March 2023)**

First Methanol-Ready Cruise Ship Begins Assembly in Finland. The cruise ship is scheduled to be commissioned in 2024.



### **Sweden (February 2023)**

Aker Arctic announces that the development of the next-gen Baltic has progressed to the next phase. The design has been finalized in cooperation with the SMA with methanol as the chosen fuel



### **Canada (February 2023)**

Methanex and MOL say Cajun Sun tanker completed the first-ever net-zero voyage using bio-methanol across the Atlantic on a new fuel blend

### **Netherlands (February 2023)**

Dutch fuel producer OCI and barge operator Unibarge have developed a dual-fuel methanol bunker barge, which will be deployed at the Port of Rotterdam in the second half of 2024.

### **USA (February 2023)**

Advent Technologies will develop a 50kW-500kW marine fuel cell solution for a range of superyachts, providing a sustainable and reliable source of auxiliary power and improving power density.

### **Netherlands (February 2023)**

Dutch short sea shipping company Vertom Group has ordered two dry cargo vessels with a modular electric propulsion system ready for methanol-electric operation.

### **France (February 2023)**

French liner giant CMA CGM has ordered an additional six 15,000 TEU container ship dual-fuel methanol newbuildings for delivery in 2025 and 2026, this brings CMA CGM's total order to 12 methanol ships.

### **Switzerland (February 2023)**

Proman and HMMsign MOU explore future methanol supply for HMM's new order of nine methanol dual-fuel 9,000-teu newbuildings.



**Canada (February 2023)**

Algoma Central Corporation and The CSL Group announced a newbuild order with Jiangsu Yangzi-Mitsui Shipbuilding Co., Ltd., to construct four new methanol-ready Kamsarmax-based ocean belt self-unloading vessels. These new dry bulk carriers will operate in the Great Lakes and St. Lawrence Seaway.

**South Korea (February 2023)**

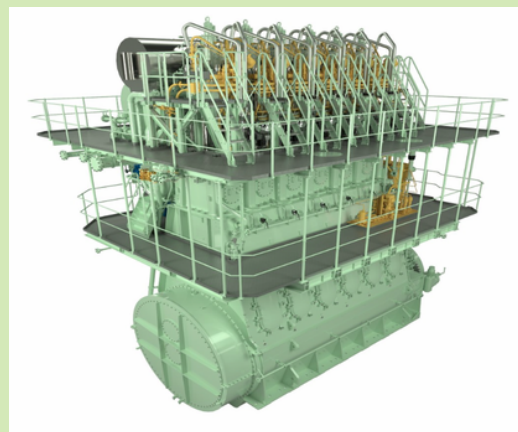
South Korean flagship carrier HMM announced orders for nine 9,000 TEU vessels, which will be delivered from 2025 through to 2027. The orders, worth a combined KRW1.41trn (\$1.12bn), are split between Hyundai Samho Heavy Industries and HJ Heavy.

**Japan (February 2023)**

Long-term MAN Energy Solutions licensee, Mitsui E&S Machinery, has won another contract to supply the individual MAN B&W 6G50ME-LGIM (-Liquid Gas Injection Methanol) engine for a 65,700 dwt bulk carrier slated for construction at Tsuneishi Shipbuilding Co. Ltd.

**Brazil (January 2023)**

Vale announces what could become the world's largest methanol-fueled bulk carrier, equipped with wind propulsion and a range of energy-saving technologies that allow it to slash greenhouse gas emissions by 90%.





## **China (January 2023)**

HHI-EMD methanol engine passes milestone test to be supplied to the first 2,100 TEU methanol-fueled containership under construction for Maersk at Hyundai Mipo Dockyard.

## **Brazil (January 2023)**

Vale announces what could become the world's largest methanol-fueled bulk carrier, equipped with wind propulsion and a range of energy-saving technologies that allow it to slash greenhouse gas emissions by 90%.

## **USA (January 2023)**

Advent Technologies and Alfa Laval Partner in Marine Fuel Cell Development Project to explore applications for Advent's methanol-powered fuel cells in the marine industry.

## **S. Korea (January 2023)**

Maersk launched the construction of its first 16,200 TEU dual-fuel containerships that can run on green methanol. expected delivery for 2024.

