

LNG Fuelling

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TotalEnergies, MSC complete first LNG bunkering at Marseille

TotalEnergies Marine Fuels and MSC Group have successfully completed their first LNG bunkering operation at the Port of Marseille Fos, refuelling the cruise ship *MSC World Europa*.

The vessel is part of MSC's Cruise Division and was delivered in October 2022 by Chantiers de l'Atlantique from the Saint Nazaire shipyard in France. Measuring 333 metres in length, MSC claims the vessel is the best performing large cruise ship in the world in terms of CO₂e emissions per passenger.

"This first LNG bunkering operation in Marseille is an important milestone for our company as we welcome MSC World Europa for her first summer season in the Mediterranean,"

Patrick Pourbaix, managing director of MSC Cruises in France, said. "Featuring a range of unprecedented innovations in terms of environmental and marine technologies MSC World Europa represents a major step forward on our journey towards meeting our target of net-zero emissions by 2050."

Bunker supply deal

The recent bunker operation marks the start of the previously announced LNG bunker supply contract between TotalEnergies and MSC Group. Under the terms of this deal, TotalEnergies Marine Fuels will supply approximately



Gas Vitality bunkering the MSC World Europa

45,000 tons per year of LNG to MSC Cruises' vessels at Marseille.

"We are excited to support the Cruise Division of MSC Group in their decarbonization journey and to help the Port of Marseille Fos become an LNG bunker hub for the Mediterranean region," Philippe Charleux, Senior Vice President Lubricants and Specialties at TotalEnergies, said.

MSC World Europa is the world's first cruise ship with solid oxide fuel cell technology powered by LNG. It also boasts various advanced environmental technologies, including shore power plug-in connectivity, advanced wastewater and ballast water treatment systems, an underwater radiated noise management system, and enhanced automatic data collection systems for remote energy

monitoring and optimization.

Eliminating methane emissions

The partnership extends TotalEnergies strategy to actively invest in LNG bunkering infrastructure. Currently the world's third-largest LNG player, the firm has committed to increase the share of natural gas in its sales mix close to 50% by 2030, reducing carbon emissions and eliminating methane emissions associated with the gas value chain.

"This operation also expands our LNG bunkering capabilities to the cruise ship segment, demonstrating our ability to serve a broader range of shipping clients, as the industry strives to reduce emissions," Charleux adds, "In line with TotalEnergies' Climate ambition, we will continue to work hand-in-hand with our industry partners to develop and scale up new, lower-carbon and ultimately, zero-carbon fuel solutions for shipping."

The company currently charters two 18,600-cubic-metre LNG bunker vessels - the *Gas Agility* and the *Gas Vitality* - which have jointly performed over a hundred LNG bunkering operations since November 2020.



The Gas Vitality

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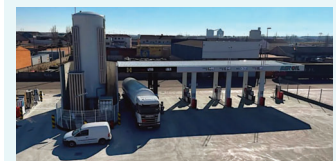
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Petronas, Tiger Gas launch LNG bunkering JV

Malaysian oil and gas company Petroliaam Nasional Berhad (Petronas) has partnered with Chinese fuel specialist Tiger Gas to launch a new joint venture LNG bunkering business.

The venture will be operated by fuelling subsidiary Petronas Marine and builds on a sale and purchase agreement signed in 2020 to supply LNG to the Chinese market via ISO tanks.

"We are committed to making sustainability the cornerstone of our operations in China by providing energy solutions that would help accelerate the progress towards the country's "Dual Carbon" goal whilst collectively contributing to the energy industry growth alongside our partners," Ahmad Adly Alias, Vice President of Refining, Marketing & Trading at Petronas, said.

Sound partnership

The new joint venture comes after Petronas Marine completed its maiden ship-to-ship LNG bunkering

operation, supplying approximately 500 tonnes of LNG to the Tiger Gas vessel Tiger Maanshan, the world's largest dual-fuel deck cargo ship.

Headquartered in Hong Kong, Tiger Gas is part of Tiger Group, and in 2021 launched the world's largest LNG tank container ship. Owned by former Seaspan director and shipping investor Graham Porter, the group is overseen by former Seaspan CEO Gerry Wang.

"Tiger and Petronas have maintained a sound partnership for a long time," Wang said. "[The] off-shore ship-to-ship LNG bunkering has greatly shortened the turnaround of LNG carrier vessels, laying a solid foundation for a more efficient and greener LNG supply chain. In the future, Tiger Group will continue to work to-



Petronas and Tiger Gas representatives at the launch ceremony

gether with Petronas to facilitate the energy transition."

20th anniversary

The bunkering operation in March, makes Tiger Gas the first Chinese customer for Petronas' LNG bunkering business in the country, however this year is the 20th anniversary of Petronas operations in China overall.

State-owned energy firm Petronas is headquartered in Kuala Lumpur and has a presence in over

100 countries. The firm has made a push into LNG in recent years, helping to cement the country's position as the world's fourth largest LNG exporter.

"Moving forward, Petronas will remain committed to the Chinese market, empower the Chinese energy industry and contribute to the country's economic development... as we forge ahead together to achieve our net zero aspiration," the firm said in a statement. ■

Pavilion, Sembcorp refuel Singapore's first hybrid tug

Fuel supply chain specialist Pavilion Energy has completed LNG bunkering operations for Singapore's first LNG hybrid tug, the *JMS Sunshine*.

Refuelling operations were carried out from LNG tanker trucks at dockside in Singapore, with 34 cubic metres of LNG transferred to the receiving vessel at Jurong Port.

"We are proud to have celebrated a milestone in the decarbonisation of Singapore's ports yesterday - the successful delivery

of LNG bunkering to Singapore's first LNG hybrid tug via trucks," a spokesperson for Pavilion Energy said.

Energy transition journey

The bunkering operation was completed on behalf of global marine and offshore engineering group

Sembcorp Marine, which designed, built, owned and operates the tug.

"This operation marks the beginning of Pavilion Energy's Truck-to-Ship (TSS) LNG bunkering operations with Semb-

corp Marine, under a supply agreement with Bulk Trade, a Sembcorp Marine subsidiary. Importantly, it forms part of our commitment to support our customers in their energy transition journey with LNG as a cleaner marine fuel," Pavilion Energy commented.

Pavilion Energy is owned by Singapore sovereign wealth fund Temasek and manages a portfolio of energy assets with primary focus on LNG.

Fleet renewal

The hybrid tug not only runs on LNG but also features a generous Lithium-ion battery, allowing emission-free operation during idling and low-speed transit. It

comes equipped with a "take-me-home" reserve capacity to ensure safe return of the tug in the event of engine failure.

"The *JMS Sunshine* is part of Sembcorp Marine's efforts to lead maritime fleet renewal with green propulsion vessels. It has low life-cycle costs and leaves minimal environmental footprint," a company spokesperson said.

The tug was designed by LMG Marin, a sister subsidiary of Sembcorp Marine and was classed by the America Bureau of Shipping, achieving a Cyber Secure 1 notation indicating its inbuilt safeguards against growing cyber threats faced by the marine and offshore industry. ■



JMS Sunshine refuelling

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FueLNG, NYK bunker first LNG PCTC in Singapore

Bunkering specialist FueLNG has partnered with Japanese shipping firm NYK Line to carry out the first-ever bunkering of an LNG-fuelled Pure Car and Truck Carrier (PCTC) vessel in Singapore.

The firms collaborated on the bunkering of the *Jasmine Leader*, one of the world's largest PCTC vessels, owned by NYK. Refuelling was completed by the bunker vessel *FueLNG Bellina* in early March.

"We are delighted to have achieved the first PCTC LNG bunkering through *Jasmine Leader* in Singapore," Yuji Nishijima, Executive Officer in charge of fuel procurement for NYK, said, adding that the accomplishment represented "a significant step" towards the group's long-term goal of net-zero greenhouse gas emissions by 2050 for its ocean-going businesses.

TR56 compliant

A joint venture between Keppel Offshore & Marine and Shell Eastern Petroleum, FueLNG has been instrumental in developing Singapore as a global LNG bunkering hub, providing LNG bunkering to a wide variety of vessels through truck-to-ship and ship-to-ship bunkering.

Highlighting FueLNG's commitment to advancing the adoption of LNG as a marine fuel, Tahir Faruqi, Chairman of FueLNG and Head of Shell Downstream LNG, said: "we are pleased to work with NYK to demonstrate the feasibility and safety of this technol-

ogy for a large-scale PCTC in Singapore. LNG is the lowest carbon fuel currently available at scale today and we will continue to collaborate with our customers to drive the growth of decarbonised LNG bunkering in the region."

Faruqi added that the bunkering operation complied with Singapore's Technical Reference 56 for LNG Bunkering, which forms a critical component of the Maritime and Port Authority of Singapore's framework to ensure safe, reliable, and transparent LNG bunkering operations in Singapore.

Venosa joins bunker fleet

FueLNG also recently named the newest addition to the fleet, the LNG bunker vessel *FueLNG Venosa*, at a ceremony held in Ulsan, South Korea.

"The *FueLNG Venosa* will support a growing number of LNG-fuelled ships that call at the Singapore port, contributing to the country's ambition of becoming a

regional hub for LNG bunkering," Aw Kah Peng, Chairman of Shell Companies in Singapore and godmother of the vessel, said. "As an industry, we must work together towards reducing emissions from shipping, and LNG is a key enabler in this transition."

Built at the Hyundai Mipo Dockyard, the *Venosa* is chartered from Korea Line LNG and is a state-of-the-art LNG bunker vessel with a total capacity of 18,000 cubic metres, bringing significant economies of scale. It is designed to facilitate safe and quick turnaround of vessels carrying out

simultaneous cargo handling and bunkering operations; and is capable of bunkering different types of LNG fuel tanks. Besides bunkering operations, FueLNG Venosa shall provide gas-up and cool-down services to LNG carriers and LNG-fuelled vessels after dry docking in Singapore or enroute to loading operations.



The *Jasmin Leader* bunkering in Singapore



The *FueLNG Venosa*

NEWS NUDGES

Volvo launches long haul LNG trucks

Volvo Trucks has launched a new range of heavy-duty trucks that deliver comparable performance, driveability, and fuel consumption as diesel-powered models, with significantly less CO2 emissions.

The firm's new Euro 6-compliant heavy-duty trucks run on biogas or LNG, with CO2 emissions 20-100% lower than diesel. The Volvo FH LNG and Volvo FM LNG are available with 420 or 460 hp for heavy regional and long-haul operations, with the 460 hp gas engine producing a maximum torque of 2300 Nm, similar to Volvo's diesel engines.

5th anniversary Power Play AWARDS

Presented by **ExxonMobil**



The 2023 Power Play Awards are here!

The fifth annual Power Play Awards are now accepting nominations. Let's celebrate the accomplishments of the remarkable women and men in the LNG industry who uphold the importance of supporting and empowering others in the workplace.

There are three award categories through which you can help us recognize advances in LNG and the remarkable professionals who are making them happen:

The Rising Star

Presented to an outstanding young female professional under 35 years old

The Ambassador

Given to a professional who displays outstanding leadership

The Pioneer

Awarded to an LNG champion demonstrating outstanding business, innovation and/or technology contribution

Join us in recognizing the individuals who fan the flames of progress. **Nominations are open through June 9.**

We encourage you to submit your nominations for the Rising Star, Ambassador and Pioneer awards.



LNG

ExxonMobil

Capital takes delivery of LNG-ready tanker

Greek maritime operator Capital Ship Management has taken delivery of its third LNG-ready tanker, the *Avax*.

The vessel was built by Hyundai Vietnam Shipyard in Khánh Hòa province in south central Vietnam and entered Capital's fleet in March.

"It is assigned with Wind-Assisted Ready and HVSC-Ready notations by American Bureau of Shipping (ABS)," a spokesperson for Capital said, adding that the ship "is the third of six LNG Fuel Ready sister ships with eco-friendly design delivered to Capital in 2023."

Future ready notations

Weighing in at 50,000 deadweight-tonnes, the *Avax* is an eco-type Chemical/Product MR tanker and is part of an investment strategy that has seen Capital double down on LNG as a fuel of choice for its fleet and explore alternative propulsion systems.

The HVSC-Ready notation from ABS ensures that the vessels is prepared for installation of High Voltage Shore Connection systems in the future, while the Wind-Assist Ready notation indicates it is ready for wind propulsion upgrades.

Headquartered in Piraeus, Greece, Capital Ship Management is led by shipowner Evangelos Marinakis and operates a fleet of 31 tankers, including 12 VLCCs, 10 Aframax, 8 MR/Handy product tankers and 1 small tanker, with a total deadweight-tonnage of approximately 5.27 million tonnes.

Environmentally friendly design

The future proof design of the *Avax* is also compliant with EEDI Phase 3 and is annotated with ABS SUSTAIN-1 (2020), demonstrating adherence to UN Sustainable



The *Avax*

Development Goals.

"Being Tier III compliant for reduced NOx emissions, assigned ABS ENVIRO notation, as well as ABS Wind-Assisted Ready, HVSC-Ready and LNG Fuel Ready notations, and equipped with IHM notation for safe recycling, *Avax* becomes one of the most environmentally friendly, technologically advanced and efficient vessels in the global MR fleet," a spokesperson for Cap-

ital Ship Management said.

Marinakis also operates Capital Gas, a major operator of LNG Carriers, with a fleet of 16 carriers and total carrying capacity of approximately 2.78 million cubic meters. Last year, Capital Gas announced it was expanding its LNG fleet as it sees demand rising, with two newbuild slots and a 21-year-old second-hand vessel worth US\$535m in total. ■

Meyer Werft holds keel laying ceremony for LNG-fuelled *Silver Ray*

German shipbuilder Meyer Werft has held a keel laying ceremony for the LNG and fuel-cell powered cruise ship *Silver Ray*.

The eco-friendly vessel is the second ship in Silversea's Nova class and is designed for operation in Royal Caribbean Group's fleet. The ceremony was held at Meyer Werft's shipyard in Papenburg, Germany and a commemorative coin with the silhouette of *Silver Ray* was placed under a pre-assembled module as a symbol of good luck.

"We were delighted to welcome select members of our valued trade community to the Meyer

Werft shipyard in Papenburg to witness this milestone in the build of *Silver Ray* — one of the first times that Travel Advisors have attended the keel laying of an ultra-luxury ship," said Barbara Muckermann, President and CEO of Silversea Cruises, said.

Net-zero emissions cruising

The *Silver Ray* is scheduled to enter service in 2024 and will fol-

low the launch of sister vessel *Silver Nova*. Its dual fuel design is expected to significantly reduce emissions both at sea and dock, and it features capacity for 728 guests with crew capacity of 556.

"The Nova class will set new standards on the way to net zero emissions cruising. We are therefore delighted to take another symbolic step in the construction of *Silver Ray* today with the keel laying. I am sure that the ultra-luxury ship will be able to meet the high demands of her guests and will inspire them with her innovative design," Jan Meyer, Managing Director of Meyer Werft, commented.

Silversea Cruises is the ultra-luxury and expedition cruise brand of the Royal Caribbean Group. Both the vessels were hailed as 'important milestones' on Royal Caribbean Group's journey to achieving a net zero newbuild.

Nova class

Royal Caribbean announced its first LNG-fuelled cruise ships as far back as 2016 and since then has invested in building a new generation of cruise ships with reduced emissions profiles.

"Anticipation is building for the introduction of our pioneering Nova class ships, with *Silver Nova* set to join the fleet this summer. In addition to being two of the most sustainable cruise ships ever launched, the Nova class ships will introduce an asymmetrical design and a horizontal layout for the first time in our cruise line's history, as well as all-new public venues that are among the most spacious at sea," Muckermann added.

Located on the river Ems in northern Germany, Meyer Werft is one of the country's leading shipyards, and a major builder of luxury passenger ships. ■



Keel laying ceremony for *Silver Ray*

ZIM, Shell complete Jamaica's first LNG bunkering

Container line ZIM Integrated Shipping Services, in partnership with energy group Shell, has completed the first LNG bunkering operation in Jamaica.

The two firms collaborated on the successful bunkering of the container vessel *ZIM Sammy Ofer* at the end of March, transferring LNG in a simultaneous operation (SIMOPS) for the first time in Jamaican waters.

"The safe and efficient LNG bunkering of the *ZIM Sammy Ofer* is a great achievement for all parties involved," David Arbel, ZIM EVP COO, commented. "This is the first vessel in our growing LNG-powered fleet that will enable ZIM to be more carbon and cost efficient, thereby improving our competitive position, particularly on the strategic Asia to USEC trade, and allowing customers to reduce their carbon footprint."

The *ZIM Sammy Ofer* is the first in a series of ten 15,000 TEU LNG dual-fuel containerships which ZIM plans to deploy on their ZIM Container Service Pacific (ZCP) trade line

Low methane slip

The new bunkering location in Kingston, brings Shell's expanding global LNG network to 11 countries in total. The firm reports that it has already achieved over 1,000 safe ship-to-ship bunkering

operations across its 16 global bunkering locations.

"This landmark bunkering safely completed in collaboration with ZIM and the Maritime Authority of Jamaica expands our LNG bunkering network to the Caribbeans," Tahir Faruqui, General Manager, Head of Downstream LNG at Shell said. "With every new bunkering location added to our footprint, we are demonstrating the role for LNG as the lowest-carbon fuel available at scale today."

ZIM recently signed a ten-year marine LNG sales and purchase agreement with Shell, and the *Sammy Ofer* is the first in a series of ten 15,000 TEU LNG dual-fuel containerships which the firm plans to deploy on its ZCP trade.

The *ZIM Sammy Ofer* is equipped with ME-GI (M-type, Electronically Controlled Gas Injection) two-stroke engines, which the firm claims contribute to 'the lowest methane slip' in the industry, of around 0.2%.

Investors eye Caribbean infrastructure growth

Investor interest in LNG fuelling infrastructure across the



Zim vessel in dock in Jamaica

Caribbean has been growing in recent years as shipping lines develop new routes connecting with the US. The rapid scale-up of LNG exports from the south-east US and Gulf region has also spurred investors to expand infrastructure.

"We are proud to be able to offer and promote LNG bunkering in Jamaica" Rear Admiral Peter Brady, Director-General at Maritime Authority of Jamaica, said. "Decarbonization of the shipping industry is critical and, being readily available today, LNG is a key part of the transition to lower-carbon marine fuels. This

offering will not only grow local businesses but also encourage companies to embrace emissions reduction solutions".

Last year, Indian cryogenic specialist INOXOVA secured a design and engineering contract from Caribbean LNG to develop an LNG receiving and regasification terminal in Antigua.

Caribbean LNG is a joint venture between Eagle LNG Partners and Antigua Power Company (APC). Eagle LNG Partners liquefaction facility near Jacksonville, Florida has emerged as catalyst for Caribbean development since opening in 2018.



The Zim Sammy Ofer

NEWS NUDGES

Yantian starts LNG bunkering

Yantian Port initiated ship-to-ship LNG bunkering operations in March, making it the second port in China capable of providing LNG refuelling services, following Shanghai.

Despite the country's domination in global energy markets, China still has limited refuelling capacity at either Shanghai or Shenzhen, leaving it some way from the government's goal to become a regional LNG bunkering hub in Asia.



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Construction begins on Seaspan LNG bunker trio

Mining giant Anglo American has started operation of the first of its LNG-fuelled *Ubuntu* bulk carriers, built by China's Shanghai Waigaoqiao Shipbuilding (SWS).

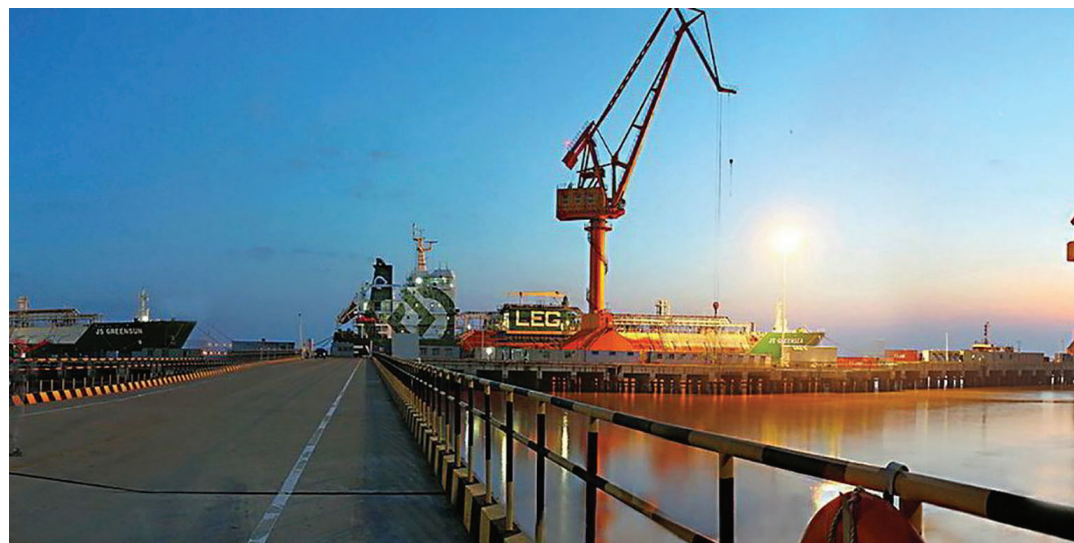
The newbuild bunker vessel features capacity for 7,600 cubic metres of fuel and currently has the working name S1061. A steel-cutting ceremony was held in the first quarter and the ship is due for delivery next year.

"Shipowner project manager Grzegorz Marzec, BV classification society project manager Wang Renwu and other shipowners, ship inspectors, CIMC SOE general manager Gao Wenbao, Deputy General Manager Pan Xiaojun, chief engineer Zhou Lubing and relevant department heads attended the commencement ceremony," a spokesperson for CIMC SOE said.

Improved power storage capacity

The vessel is the first of three sister ships under contract by Seaspan from CIMC SOE and will measure 112.8 metres in length, 18.6 metres in width, and five metres in draft when complete.

"The bunkering ship design will integrate the latest ship technology, improve the capacity of the power storage system, and further reduce operational pollution emissions and greenhouse gas emissions. In addition, the ship is equipped with relevant thrusters which has excellent manoeuvra-



Nantong shipyard

bility and can be applied to LNG loading, unloading and bunkering services under different conditions. The performance indicators of the ship have reached the international advanced level," a spokesperson for CIMC SOE added.

German engineering and services group TGE Marine will supply the cargo handling and fuel gas system, while integrated automation systems (IAS) will be supplied by Norway's Hoglund. All of the vessels will feature dual IMO type C cylindrical tanks as well as LNG sub-cooling systems to facilitate cargo conditioning during transit and anchorage.

Bureau Veritas classification

All three vessels will be Canadian-flagged ship and classified by Bureau Veritas, with the first two ships delivered in 2024 and the final vessel in 2025.

Blueprints for the vessels were designed by Canadian naval architects Vard Marine and have been optimised by ship-to-ship LNG transfer as well as coastal/short sea shipping operations.

Seaspan also partnered with the Port of Vancouver, Canada's largest port, and FortisBC, the owner of the Tilbury LNG facility in British Columbia to define requirements for the vessel designs. ■

NEWS NUDGES

Shell opens first LNG refuelling station in Hungary

Energy firm Shell has opened its LNG filling station in Hungary. Located in Szigetszentmiklós, next to the M0 ring road, the station is part of the firm's strategy to develop LNG infrastructure across the country.

"The operation of Shell Hungary's LNG filling station not only represents a new stage in the decarbonisation of road transport in Hungary, but also a viable option for entrepreneurs from the neighbouring countries," Istvan Kapitany, Global Executive Vice President at Shell, said. "We believe that a mosaic of solutions will be needed at different stages of the journey towards decarbonisation. Today, one piece of the mosaic is LNG that the commercial road transport can use."

The site will support refuelling for road vehicles across the region, connecting with networks in Austria, the Czech Republic, Germany, Romania, Slovenia and Slovakia. ■



CIMC representatives at the steel cutting ceremony

Titan, NYK complete LNG bunkering first at Antwerp-Bruges

Marine fuel and lubricant solutions provider Titan has completed its first ship-to-ship bunkering operation with Japanese shipping firm NYK Line in Belgium.

The refuelling operation was carried out on the car carrier, *Jasmine Leader*, in the Port of Antwerp-Bruges in Belgium.

"The operation was successfully executed [and] would not have been possible without the close cooperation between all parties. We, therefore, thank everyone involved in this successful

operation. NYK Line and Port of Antwerp-Bruges," a spokesperson for Titan said.

Proud milestone

The refuelling operation was carried out by Titan's LNG bunker vessel *Optimus*, which features two 3C-type LNG storage tanks with a combined storage capacity

of up to 6,000 cubic metres of LNG. The vessel is classified as ICE class 1A measures 99.8 metres in length, and 18.6 metres in width, with a top speed of 13.4 knots and a deadweight of 3,300 tonnes.

The refuelling of the *Jasmine Leader* marks the start of a long-term contract between NYK and Titan for LNG supply at the port and is part of wider strategy by port authorities to refocus on alternative bunker fuels.

"We are very proud of this milestone since it represents the beginning of a long relationship with this prominent line," Titan commented.

Expanding LNG bunkering

At the start of this year, authorities at the Port of Antwerp-Bruges reported that LNG volumes jumped by 61.3% 2022, while LPG

grew by 30% and Jacques Vandermeiren, CEO Port of Antwerp-Bruges, explained that the authority plans to introduce "a high-quality licensing system and a digitisation path" as it further expands LNG bunkering.

The Belgian ports of Antwerp and Zeebrugge agreed to merge in early 2022, creating the unified Port of Antwerp-Bruges, the largest export port in Europe, and major investments in new infrastructure are now planned, reshaping bunkering and energy use at the site.

"The growth in LNG throughput confirms the important position of Port of Antwerp-Bruges in that segment," Dirk De fauw, Mayor of the City of Bruges and Vice-Chairman of Port of Antwerp-Bruges, said. "Together with the new investments, this will continue to strengthen our international position." ■



NYK *Jasmine Leader* bunkering fuel

Hafnia completes debut LNG bunkering in Pengerang

Singapore-based tanker owner and operator Hafnia recently celebrated the completion of its first LNG bunkering operation on board its product tanker *Hafnia Languedoc*.

This vessel is the first of four new LNG dual-fuel LR2 product tankers that will be time chartered out to energy giants Total and Equinor."

"The LNG Bunkering took place successfully and seamlessly at the Port of Pengerang in Malaysia in mid-April," a spokesperson for Hafnia said.

GSI delivery

In March, *Hafnia Languedoc* was officially welcomed into the Hafnia fleet, having been delivered by Guangzhou Shipbuilding International (GSI), a subsidiary of China State Shipbuilding Corporation.

The four new sister vessels are all equipped with a fuel gas supply system featuring full redundancy on all supply systems, capable of handling boil-off gas from the LNG tanks under any condition. The vessels' auxiliary engines, gensets, and boilers will be able to run on multiple fuel types.

"Well done to all those in-

volved, and we look forward to sharing more on LNG bunkering in the months to come, as we take over more LNG dual fuel vessels," the Hafnia spokesperson added.

The ships will be classed by DNV and sail under the Maltese flag. Hafnia's fleet consists of 230 vessels, including 115 owned and 102 operated ships.

Fleet expansion

In 2022, Hafnia expanded its fleet by adding 36 vessels through the strategic acquisitions of Scorpio and Chemical Tankers Inc (CTI), making it the world's largest product and chemical tanker operator.

The CTI acquisition was a key part of the firm's new Climate Strategy and its plan to achieve a 40% carbon intensity reduction by 2028, based on a baseline carbon intensity of 5.24 grams/ton nautical mile (T-NM) in 2022.

"The maritime sector is increasingly under pressure to de-

carbonise, and I believe that Hafnia is at the forefront of such efforts. We are consistently working to reduce our environmental footprint by looking for vessel optimisation initiatives that reduce our

emissions to the air," Mikael Skov, CEO of Hafnia, said.

The firm sees the use of LNG as the most viable alternative fuel until ammonia and hydrogen engines become commercially viable. ■



The *Hafnia Languedoc*

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20 - 23 JUNE 2023
9AM - 4PM (GMT+8)
SINGAPORE

Fratelli Cosulich launches first LNG bunker vessel

Italian maritime group Fratelli Cosulich has launched its first LNG bunker tanker vessel, the *Alice Cosulich*.

The ship was launched at CIMC SOE shipyard in China and is the first of two small scale LNG bunker vessels to join the firm's fleet.

"This important investment reaffirms the group's commitment to safeguard the environment, while decreasing our carbon footprint and operating with absolute safety," Giulia Cosulich, ESG corporate director for the firm said. "The group is today really focussed on growing all LNG-related activities for the long-term future."

Wartsila dual fuel technology

The new vessel features capacity to store 8,200 cubic metres of LNG and 500 cubic metres of marine gasoil (MGO) and is 5,300 deadweight-tonnes.

Propulsion will be based on an azimuth type system with a double bow thruster, designed to ensure high manoeuvrability in port areas, and this will be integrated with Wartsila dual fuel technology. An onboard LNG subcooling plant will offer efficient boil off treatment, completely eliminating many emissions, minimising cargo losses, and delivering cost savings.

Delivery of the vessel is sched-

uled for September this year. It will sail under the Italian flag with Captain Vincenzo Scotto at the helm.

CEF support

"As this project is contributing to the decarbonisation of maritime transport through the implementation of LNG bunkering solutions in the Mediterranean Sea, it has been awarded a grant by the European Union under the Connecting Europe Facility (CEF) programme, with Cassa Depositi e Prestiti acting as implementing partner," a spokesperson for the firm said.

Headquartered in Genoa, Italy, Fratelli Cosulich is a diversified multinational, fully owned by the Cosulich family. Tracing its origins back to 1857, it currently operates in 15 countries with core activities including ship agency, marine fuel trading, manning, catering, yacht services, freight-forwarding, amongst others.

Giulia Cosulich highlighted the strong relationship with CIMC and China, noting that "the relationship has grown stronger over time in various fields of activity and multiple business sectors, this launch is tangible proof of the mutual trust that exists." ■



The *Alice Cosulich*

NEWS NUDGES

India considers new LNG port incentives

Authorities in India are reportedly considering new incentives for fleet owners to adopt LNG at ports across the country.

The policy is part of a shift by government to support cleaner fuels in ports and could also include subsidies for CNG, electric or green hydrogen-powered trucks. The move is aimed at reducing the intensity of emissions at major ports.

Reefuelery breaks ground on Burghaun bioLNG plant

Project developer Reefuelery has begun construction of a bio-LNG production plant worth

US\$55m in Burghaun, Germany. The plant will have a capacity of up to 180 tonnes of bio-LNG per day and will be located near Fulda, providing direct access to the MIDAL gas pipeline.

The bio-LNG produced will be used as an alternative fuel for freight and heavy-duty transportation, reducing CO2 emissions. The plant can provide fuel for up to 4,500 heavy-duty vehicles, saving up to 550,000 tons of CO2 per year compared with diesel fuel. The plant is expected to go online in 2024.

Reefuelery is a joint venture between regional energy supply company Erdgas Südwest and energy logistics group Avanca. ■



Launch of the *Alice Cosulich*

HAM inaugurates Zamora LNG service station

Fuelling services firm HAM Group has inaugurated a new LNG and compressed natural gas (CNG) service station in Benavente, Zamora.

The station is strategically located at Cañada Berciana 9A, next to the A-6, one of Spain's six radial highways, and the N-630, one of the longest national highways in the country.

"Our customers will be able to refuel quickly and safely at this new vehicular natural gas service station, which is remotely monitored to ensure seamless operation and prompt resolution of incidents," a spokesperson for the firm said.

Dual dispensers

Designed and built by HAM Criogénica, the new service station features two LNG dispensers (with three hoses) for refuelling trucks and heavy vehicles, as well as two CNG dispensers (with three hoses) for cars, light vehicles, and trucks.

The station operates will operate 24 hours a day, 365 days a year and accepts payments through any credit or debit card or the HAM Card for professional use, designed exclusively for companies and self-employed individuals.

A 24-hour technical assistance telephone line is also available,



Zamora LNG / CNG refuelling station

where the company's technical team can address any issues that may arise.

Replacement for mobile unit

This new site replaces HAM's mobile unit, which previously provided service at Route N-525 Madrid (km 260.5), just three minutes from the new location, and

expands HAM's network to more than 115 service stations, situated on major transport routes throughout Spain and the rest of Europe.

"We continue to bet on CNG, LNG and Biomethane, as real sustainable alternatives to fossil fuels, helping to reduce polluting emissions and respecting the environment," the spokesperson

added.

Headquartered in Barcelona, HAM Group estimates that it has designed and built one out of every four LNG service stations that currently exist in the continent. The firm has undertaken more than 300 projects worldwide, with experience building LNG facilities for multiple sectors. ■

NEWS NUDGES

Pretoria acquires Roadgas, expands UK fleet

Pretoria Energy Group has acquired UK-based Roadgas, which owns several bio-BNG and bio-LNG stations across the country. The firm will continue to operate under the name Roadgas, offering bespoke, on-site fuelling solutions with UK-produced biomethane.

"This acquisition will advance our ability to deliver biomethane from our AD plants in the UK directly to haulage fleets in the UK, allowing fleet

operators to follow their fuel supply from the field to their vehicle's tank," Steve Ripley, managing director of Pretoria, said.

The group aims to fuel over 2,500 gas-fuelled trucks annually within five years. Roadgas has built 30 LNG, CNG, and LCNG fuelling stations in the UK and operates a number of truck and bus gas fuelling stations around the country.

"Pretoria is committed to producing a significant and rapid increase in waste-based biogas volumes by 2028 com-

pared to 2021 as part of our growth strategy," Ripley added.

Liquid Energy unveils mobile LNG refuelling station

Industry consortium Liquid Energy has presented the world's first nano-scale mobile LNG refuelling station at a conference in Rostock, introducing a 3.5-ton prototype vehicle which can serve as a mobile refuelling station for bio-LNG and LNG.

The project, led by Mar-

itime Institute Gdynia Maritime University, aims to change the LNG distribution system, enabling delivery to smaller recipients previously unable to access this alternative energy source. Unlike conventional transport methods, the mobile station allows direct delivery of small quantities of bio-LNG or LNG from producers to local users. The project unites 29 partners across the South Baltic region, focusing on micro/nano-scale technologies to explore the potential of (bio-) LNG. ■



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Gasum considers Drammen bioLNG bunkering

The Port of Drammen in Norway is working with Finnish state-owned gas company Gasum to explore the possibility of bunkering bioLNG at the port.

Located at the head of the Drammensfjorden, outside Oslo, the port is not far from Gasum's LNG terminal at the Øra industrial site near Fredrikstad.

"Vice President of the Gasum Maritime Department, Jacob Granqvist, confirms that the company is studying the possibility of bunkering biogas at the port of Drammen," a spokesperson for the port authority said. "Of course, we are very positive about this."

Auto Energy refuels

The move follows the successful completion of the inaugural LNG bunkering operation at the port of Drammen earlier this year.

Gasum worked with shipping line United European Car Carriers' (UECC) to bunker its hybrid pure car and truck carrier (PCTC) in late March. Named *Auto Energy*, the vessel can run on LNG and battery power and the refuelling operation involved the transfer of around 70 tonnes of LNG onto the vessel.

Gasum's LNG terminal in Øra provides nearby industries with natural gas through a local pipeline grid and delivers LNG by

truck to Sweden as well as eastern parts of Norway. The terminal is a large tank park consisting of nine tanks with combined storage capacity of 5,900 cubic metres of LNG.

Shift to renewable gas

Gasum announced plans to bring 7 TWh of renewable gas to the market annually by 2027, as part of a new strategy launched in 2022, emphasizing a shift towards renewable gas and electricity. The company plans to increase its own biogas production and source more renewable gas from trusted partners. Gasum currently operates 17 biogas plants in Finland and Sweden, reducing CO2 emissions by up to 90%. The Nordic region produces around 12 TWh of biogas yearly, with Denmark being the largest producer at 8 TWh.

"There is still much to do to decarbonize land and sea transportation as well as industrial processes. Increasing biogas availability in these segments is a way of reducing emissions sooner rather than later. The switch to biogas can happen almost at the snap of your fingers, because biogas is fully interchangeable with



Gasum tanker

natural gas wherever it is currently used", Mika Wiljanen, CEO of Gasum said.

Headquartered in Espoo, Finland, Gasum provides integrated gas services across the Nordic re-

gion and northern Europe. The firm is also the transmission system operator of the natural gas grid of Finland, a natural gas importer and seller and biogas refiner in Finland and Sweden. ■

NEWS NUDGES

Seaside LNG acquires *Clean Jacksonville*

Seaside LNG has acquired the LNG bunker barge *Clean Jacksonville* from TOTE Maritime and will continue fuelling TOTE's Marlin Class LNG-powered container ships and other commercial customers via subsidiary Polaris New Energy.

The acquisition allows Seaside to expand its fleet operations geographically and follows a long-term contract with TOTE Services to serve as the technical manager of the *Clean Jacksonville*. The vessel complements Polaris' *Clean Canaveral* and *Clean Everglades*, scheduled for delivery by the end of 2023. ■



Port of Drammen



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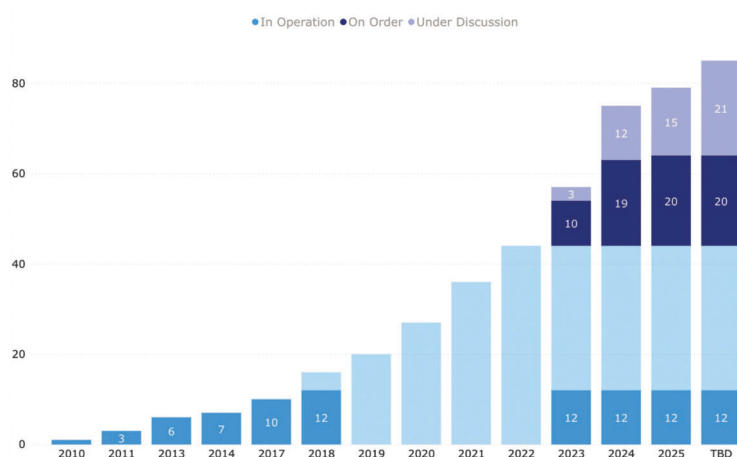
Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
1974	Seagas	187	LNG	Sweden	Yes	AGA
1988	Kayoh Maru	1,517	LNG	Japan	Yes	Daiichi
1993	Aman Bintulu	18,928	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
1996	Surya Aki	19,475	LNG	Indonesia - Japan	Yes	MCGC
1997	Aman Sendai	18,928	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
1998	Pelita Energy	18,800	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
2000	Triputra	23,096	LNG	Indonesia - Japan	Yes	MCGC
2003	Pioneer Knutsen	1,100	LNG	Norway	Yes	Knutsen
2003	Shinju Maru No.1	2,540	LNG	Japan	Yes	Shinwa
2005	North Pioneer	2,500	LNG	Japan	Yes	Japan Liquid Gas
2007	Sun Arrows	19,531	LNG	Malaysia - Russia - Japan	Yes	Mitsui
2008	Kakurei Maru	2,536	LNG	Japan	Yes	Hogaki Zosen
2008	Shinju Maru No.2	2,540	LNG	Japan	Yes	Shinwa
2009	Coral Methane	7,551	LNG/LPG/Ethylene	Northwest Europe/Baltics	Yes, sometimes	Anthony Veder
2010	Coral Favia	10,000	LNG/LPG/Ethylene	Worldwide	No	Anthony Veder
2010	Coral Fraseri	10,000	LNG/LPG/Ethylene	Worldwide	No	Anthony Veder
2011	Coral Furcata	10,000	LNG/LPG/Ethylene	Worldwide	No	Anthony Veder
2011	Coral Fungia	10,000	LNG/LPG/Ethylene	Worldwide	No	Anthony Veder
2011	Akebono Maru	3,556	LNG	Japan	Yes	Chuo Kaiun
2011	Vision Spirit	12,000	LNG/LPG/Ethylene	Worldwide	No	Teekay
2011	Seapeak Unikum	12,000	LNG/LPG/Ethylene	Worldwide	No	Teekay
2012	Coral Energy	15,600	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2013	Coral Anthelia	6,500	LNG/Ethylene			Anthony Veder
2013	JX Energy TBN	2,500	LNG	Japan	Yes	JX Energy
2013	Kakuyu Maru	2,500	LNG	Japan	Yes	Tsurumi Sunmarine
2015	JS Ineos Ingenuity	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2015	JS Ineos Insight	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2015	JS Ineos Intrepid	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2015	LNG Barge TBN	3,000	LNG	US Coast	Yes	LNG America
2015	PetroChina TBN	30,000	LNG	China		PetroChina
2016	Hai Yang Shi You 301	30,000	LNG	Bali FSU	Yes	CETS (CNOOC)
2016	Clean Jacksonville	2,200	LNG	US Coast	Yes	CME
2016	JS Ineos Indepence	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	JS Ineos Innvation	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	JS Ineos Inspiration	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2016	LNG Prime	2,250	LNG	Northwest Europe	Yes	Veka Deen LNG
2017	Coralius	5,800	LNG	Northwest Europe/Baltics	Yes, for Skangas	Anthony Veder
2017	Coral EnergiCE	18,000	LNG	Northwest Europe/Baltics	Yes	Anthony Veder
2017	Coral Encanto	30,000	LNG	China	Yes	Anthony Veder
2017	JS Ineos Invention	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2017	JS Ineos Intuition	27,500	LNG/Ethylene	Markus Hook - Rafnes	Ethane, for Ineos	Evergas
2017	Oizmendi	600	LNG	Spain	Yes	Itsas Gas
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	LNG-Gorskaya TBN	7,300	LNG	Russia	Yes	LNG-Gorskaya
2017	Green Zeebrugge	5,000	LNG	Northwest Europe	Yes	NYK
2017	New Frontier 1	6,500	LNG	Northwest Europe	Yes	Shell
2018	Kairos	7,500	LNG	Baltic	Yes	Bernhard Schulte
2018	LNG London	3,000	LNG	Northwest Europe	Yes	Shell
2018	Shell Bunker Barge TBN 2	6,500	LNG	Northwest Europe	Yes	Shell
2018	Shell Bunker Barge TBN 3	6,500	LNG	Northwest Europe	Yes	Shell
2018	Bunker Breeze	1,200	LNG	Barcelona	Yes	Suardiaz Energy Shipping

Built	Name	CBM	Cargo Type	Trading area	Trading in LNG?	Ship Owner / Operator
2018	HUA XIANG 8	13,720	LNG	China	Yes	Zhejiang Huaxiang
2019	SM Jeju LNG1	7,500	LNG	Korea	Yes	Korea Line
2019	Gas Agility	18,600	LNG	NWE	Yes	MOL
2019	Flexfueller 001	1,480	LNG	Amsterdam	Yes	Titan LNG
2020	Avenir Advantage	7,500	LNG	Mediterranean	Yes	Avenir LNG
2020	Avenir Accolade	7,500	LNG	Mediterranean	Yes	Avenir LNG
2020	Avenir Aspiration	7,500	LNG		Yes	Avenir LNG
2020	Kaguya	3,500	LNG	Japan	Yes	CLS
2020	CNTIC VPOWER Global	28,000	LNG	Myanmar	Yes	Dalian Inteh Group
2020	Ecobunker Tokyo Bay	2,500	LMG	Japan	Yes	Ecobunkers
2020	Optimus	6,000	LNG	NWE	Yes	Elenger
2020	FueLNG Bellina	7,500	LNG	Singapore	Yes	FueLNG
2020	SM Jeju LNG2	7,500	LNG	Korea	Yes	Korea Line
2020	Q-LNG 4000	4,000	LNG	US Coast	Yes	Q-LNG Transport/Harvey Gulf
2020	Flexfueller 002	1,480	LNG	Antwerp	Yes	Titan LNG
2021	Avenir Ascension	7,500	LNG		Yes	Avenir LNG
2021	Hai Gang Wei Lai	20,000	LNG	China	Yes	SSES
2021	Bergen LNG	850	LNG	Norway	Yes	Bergen Tankers
2021	Dmitry Mendelev	5,800	LNG	Russia	Yes	Gazprom Neft
2021	JMU TBN	2,500	LNG	Japan	Yes	JMU
2021	Ravenna Knutsen	30,000	LNG	Mediterranean	Yes	Knutsen OAS
2021	Brassavola	12,000	LNG	Singapore	Yes	MOL
2021	Gas Vitality	18,600	LNG	Mediterranean	Yes	MOL
2021	TG TBN	500	LNG	Korea	Yes	Trans Gas
2021	Titan Hyperion	8,000	LNG	Benelux	Yes	Titan LNG
2022	Xin Ao Pu Tuo Hao	8,500	LNG	China	Yes	ENN
2022	Coral Nordic	30,000	LNG	Worldwide	Yes	Anthony Veder
2022	Avenir Achievement	20,000	LNG	Worldwide	Yes	Avenir LNG
2022	Haugesund Knutsen	5,000	LNG	Spain	Yes	Knutsen OAS
2022	Clean Cañaveral	5,400	LNG	USG	Yes	PNE
2022	K.Lotus	18,000	LNG	Korea	Yes	K Line
2023	Cryopeak TBA	4,000	LNG	West Canada	Yes	Cryopeak
2023	Kuntsen TBN	12,500	LNG	Spain	Yes	Knutsen OAS
2023	SM Jeju LNG3	7,500	LNG	Korea	Yes	Korea Line
2023	Pan Ocean TBN	18,000	LNG	USG	Yes	Pan Ocean Co
2023	Krios	4,200	LNG	Benelux	Yes	Titan LNG
2023	Fratelli Cosulich TBN	8,000	LNG	Mediterranean	Yes	Fratelli Cosulich
2023	Kanfer TBN	6,000	LNG	Worldwide	Yes	Kanfer Shipping
2023	Kanfer TBN	6,000	LNG	Worldwide	Yes	Kanfer Shipping
2023	PNE TBN	5,500	LNG	USG	Yes	PNE
2024	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2024	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2024	TBN	30,000	LNG	Australia	Yes	Anthony Veder ?
2024	Crowley TBN	12,000	LNG	US Coast	Yes	Crowley Maritime
2024	CNOOC TBN	12,000	LNG	China	Yes	CNOOC
2024	TBN	12,500	LNG	Worldwide	Yes	???
2024	Keys TBN	3,500	LNG	Japan	Yes	Keys Bunkering West Japan Co
2024	Seaspan TBN 1	7,600	LNG	Canada	Yes	Seaspan ULC
2024	Fratelli Cosulich TBN	8,000	LNG	Mediterranean	Yes	Fratelli Cosulich
2024	Anhui Changjiang TBN	14,000	LNG	China	Yes	Anhui Changjiang LNG
2024	LNG Erasmus	8,000	LNG	NWE	Yes	Shell
2025	Seaspan TBN 2	7,600	LNG	Canada	Yes	Seaspan ULC
2026	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2026	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG

PLANNED NEWBUILD LNG BUNKER VESSELS

Vessel Name	Delivery Year	Project status	Country	Home Port
Titan TBN 1	2023	Decided	Europe	
Titan TBN 2	2023	Decided	Europe	
K LNG Dream	2023	Decided	South Korea	
Korea Gas (KOGAS) LNG bunker vessel	2023	Decided	South Korea	
Shell LBV Gulf of Mexico	2023	Decided	United States	Gulf of Mexico
Fratelli Cosulich Mediterranean Sea	2023	Decided	Italy	Mediterranean Sea
Peninsula/Enagas LNG bunker vessel	2023	Decided	Gibraltar	Port of Algeciras
FSU and LNG Bunker Barge, Port of Coega, South Africa	2023	Under discussion	South Africa	Port of Coega
FSU and Bunker Barge	2023	Under discussion	South Africa	Port of Coega / Algoa Bay
Brassavola	2023	Decided	Singapore	Singapore
Cryopeak LNG	2023	Under discussion	Canada	Vancouver
Korea Line/Shell LBV	2023	Decided	Singapore	Singapore
Petronas LNGBV	2024	Under discussion	Malaysia	
Ecobunker Tokyo Bay	2023	Decided	Japan	Yokohama
LNG bunker barge GALP	2024	Under discussion	Portugal	
Oceania Marine Energy LBV	2024	Under discussion	Australia	Dampier
Polaris ATB No. 2	2024	Decided	United States	Jacksonville, FL
Eagle LNG caribbean LNGBV	2024	Under discussion	America	Jacksonville, FL
KEYS Bunkering West Japan LBV	2024	Decided	Japan	Kyushu and Setouchi regions
Fratelli Cosulich Mediterranean Sea 2	2024	Decided	Italy	Mediterranean Sea
Kanfer Shipping LNG bunker vessel 1	2024	Under discussion	--	Not yet decided
Poseidon Med II bunkering barge	2024	Under discussion	Europe	Revithoussa
Domestic LNG Bunkering Vessel in China	2024	Decided	China	To be decided (China)
Titan Hyperion	2024	Under discussion	Netherlands	TBD
Domestic LNG Bunkering Vessel in China	2024	Under discussion	China	To be decided (China)
Crowley/Shell LNG bunker barge	2024	Decided	United States	U.S. East Coast
Seaspan LNG bunker vessel	2024	Decided	Canada	Vancouver
Seaspan LNG bunker vessel 2	2024	Decided	North America	Vancouver
Seaspan LNG bunker vessel 3	2024	Decided	North America	Vancouver
TBN	2024	Decided	China	Yangtze River
Titan Krios	2024	Under discussion	Belgium	Zeebrugge
Net Zero hive Canarias	2025	Decided	Spain	Canary Islands
Oceania Marine Energy	2025	Under discussion	Dampier	
Woodside Western Australia LNG bunker vessel	2025	Under discussion	Australia	Dampier
LNG bunker vessel Swinoujscie	2025	Under discussion	Poland	Swinoujscie
TBN 1	TBD	Under discussion	Germany	Germany
TBN 2	TBD	Under discussion	Germany	Germany
TBN 3	TBD	Under discussion	Germany	Germany
FlexFueler 004	TBD	Under discussion	Germany	Lubeck
Q-LNG ATB Bunker Barge 8000	TBD	Under discussion	United States	TBD
FlexFueler 003	TBD	Under discussion	Belgium	Zeebrugge

Growth of LNG bunker fleet



LNG bunker fleet by tank capacity

