

LNG Transition

LNG AS A TRANSITION FUEL

1st Quarter 2025

LNG set to dominate alternative fuel investment in 2025

While the hype around future fuels remains strong, LNG retains its position as the leading solution driving the energy transition in the maritime sector.

Landmark investments in alternative fuels, such as methanol and ammonia, have garnered attention in recent years but the latest data shows LNG dual-fuel technology has strengthened its position as the market leader moving into the first quarter of 2025.

The return of Donald Trump as US president is also set to boost LNG supply further this year, as the White House has reversed the previous moratorium on LNG export permits and accelerated plans for an LNG bunkering hub in Texas.

"We remain full speed ahead on our current and future expansion projects and are confident that we will secure all necessary regulatory approvals," Bernardo Fallas, Director of Communications at Cheniere Energy, said.

Existing US capacity was estimated at 200 million tonnes per annum but new permits issued in 2025 are likely to add certainty for the longer-term and increase export capacity from 2030 onwards. Despite this, the announcement of tariffs may derail some global trade in LNG and shipping consultancy Drewry expects LNG



Artist's rendition of Galveston LNG hub

fleet to outpace liquefaction build-up in 2025 as demand remains strong.

Record investment

Findings from a recent report by Clarkson Research show that LNG dominated investment in alternative fuels last year. Transition fuels remain high on the agenda for shipping lines, with newbuild orders driving the shift as the global merchant fleet is reshaped.

"With overall newbuild order volumes reaching their highest level since 2007, alternative fuel has continued to play a prominent role representing 50% of all tonnage ordered in 2024," Steve Gor-

don, Global Head of Clarkson Research, says. "There has been a return to LNG dual fuel technology dominating [the sector]".

Port infrastructure lagging

The findings were published as part of Clarkson's recent Green Technology Tracker which reported that 820 vessels with alternative fuel capability, equivalent to 62.2 million gross tonnes, were ordered last year, a record level of investment.

Investment in LNG solutions accounted for 70% of alternative fuelled tonnage ordered, excluding LNG Carrier, while methanol made up just 14%, according to the report. This marks a stark change from 2023, when LNG accounted for only 43% as compared to methanol at 30%.

Despite the landmark investment last year, Clarkson note that "investments in port infrastructure and the availability of 'green' fuels continue to lag". However, LNG again dominates the sector with 276 ports equipped for LNG bunkering, as opposed to just 35 ports with methanol bunkering available and planned. ■



LNG bunkering operation

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Tariffs threaten LNG transition disruption

The imposition of fresh tariffs by the Trump administration threaten to derail LNG trade routes, potentially throttling its use as a transition fuel in some regions.

China's swift retaliatory tariffs on US exports will lead to efforts to separate the world's largest buyer and seller of fuel. Following the White House announcement that Chinese imports will face a 10%

levy, Xi Jinping placed a 15% tariff on American gas imports.

"Trump is going to use US LNG as a geopolitical bargaining chip," Stephen Stapczynski, Bloomberg Business reporter, said, adding

that it "could result in a mismatch of supply/demand in different regions. For example, more LNG being rerouted to Europe could push prices lower there."

Supply/demand mismatch

Chinese imports of US LNG accounted

for around 6% of total Chinese LNG volumes last year. Buyers in the country that are currently holding long-term US contracts are now likely to resell their shipments to other importers.

"China imported 4.2 million tonnes of its LNG from the US in 2024, which is about 1% of the global market and about 5% of what the US exported," Tom Marzec-Manser, market analyst, said, noting that tariffs will have some impact on natural gas flows and TTF.

Regional shifts

This shift in trade patterns may have adverse consequences on ex-

isting or planned infrastructure but may also add a filip for nearby bunkering hubs.

Singapore for instance has seen record LNG growth in the last year and displacement of volumes that were previously headed to China may well bolster the island states position as a regional LNG hub.

In the longer-term, Chinese firms are now unlikely to sign any new long-term contracts with US. Even if the current tariffs are reversed buyers are set to be much more wary of investments with US partners in 2025 and this may lead to price hikes as redundancy and contingency costs are added into transactions. ■



Chinese LNG import terminal

T&E issues revised EU LNG pollution estimates

LNG imports to Europe may be substantially more polluting than previously thought, following research into upstream emissions.

A new study by US consultancy Energy and Environmental Research Associates (EERA) shows that LNG imports to Europe may be as much as 30% more polluting than has previously been assumed by the EU.

The findings contradict figures in the EU's green shipping law which outlines the estimated pollution levels of various fuels and places LNG as a lead contender as a transition fuel for the sector.

Upstream emissions

The new study was completed by EERA on behalf of European federation Transport and Environment (T&E) which advocates for the end of fossil fuels. It challenges the current FuelEU Maritime methodology which does not account for differences in emissions in up-

stream producer countries. the framework instead uses a standardised upstream emissions factor of 18.5 grams of CO₂ equivalent per megajoule (MJ) of energy.

T&E's analysis in contrast suggests that that emissions from LNG imported to Europe could be as high as 24.4gCO₂e/MJ. This would be equivalent to a large container ship running on LNG emitting an extra 2,731 tonnes of CO₂ equivalent per year.

"Extracting, transporting and burning methane is a leaky business," Inesa Ulichina, shipping officer at T&E, said: "This costly pursuit is leading major shipping companies to waste billions on a solution that won't bring them any closer to their zero-emission goals."

T&E had previously estimated

that a quarter of EU shipping could run on LNG in 2030 but based on

the new findings, the agency now calls for firms to focus on investing in green e-fuels production.

This latest study shows that LNG delivered from major suppliers such as the US, Qatar, Russia and Algeria have emissions profiles nearly as bad as the fuel it replaces. LNG supplied from less polluting upstream countries like Norway and the UK also offer limited emissions reductions as a driect replacement.

Methodology questions

While the findings appear stark, there have been criticisms of T&E



Brunsbüttel LNG import terminal

methodology in the past, as its claims over synthetic fuels in the automotive sector have been lambasted by industry body FuelsEurope.

John Cooper, Director General FuelsEurope highlighted that "incomplete and confused analysis of good scientific work" had been seriously misrepresented by T&E, noting that "the whole world would be better off if European policies supported the rapid scale-up of the full set of low-carbon liquid fuels technologies", together with their value chains and positive social impacts. ■

LNG Fuelling

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LNG 'critical' pathway to multi-fuel future

Industry coalition SEA-LNG reports that the shipping industry has accelerated moves towards a multi-fuel market in the last year, with LNG emerging as a crucial element in global growth over the next two decades.

Reporting on the sector in 2024, the coalition notes that global market adoption and growth reached 'record heights'. This was evidenced by annual growth over 33% year-on-year for the LNG vessel fleet of in 2024.

"We continue to believe that the shipping industry is heading towards a successful multi-fuel future where LNG will always play a critical role," Peter Keller, chairman of SEA-LNG, said.

Fleet to double

In total, the industry body reported 638 LNG-fuelled vessels in operation worldwide as of early 2025 and predicts over 1200 vessels to be operating by the end of 2028.

"To deliver net zero by 2050 across the global shipping fleet, a basket of fuels is required, and the LNG pathway will continue to lead the way," Keller adds. "This is not a case of my fuel versus your fuel, but rather which fuel best allows the industry to reach its stated goals. The LNG pathway provides the path to net zero."

LNG strengthened its hold on



Peter Keller

the market in 2024, with LNG dual-fuelled vessels accounting for 70% of alternative fuelled tonnage ordered, excluding LNG Carriers, up from 43% in 2023.

Bunker infrastructure

Record growth in LNG vessel numbers has been driven by a sharp rise in availability of bunkering infrastructure, with refuelling vessels also increasing rapidly last year.

In total, more than 60 LNG bunkering vessels were in operation by the end of 2024, a 22% increase from 2023. This has meant that the number of ports where LNG can be bunkered has now

risen 198, with plans underway for facilities in an additional 78 ports.

"The LNG pathway took a significant step in 2024, with liquefied biomethane delivering on decarbonisation and regular renewable e-methane supplies expected in 2026," Keller notes. "SEA-LNG members are prepared to offer biomethane bunkers in some 70 ports globally, with multiple bunkering operations already taking place."

SEA-LNG latest report also highlights advances in eliminating methane slip, with Keller concluding that the coalition believes "methane slip will be a non-issue by the end of this decade". ■

NEWS NUDGES

Portsmouth completes first LNG bunkering

The Port of Portsmouth in the south of England has completed its first LNG bunkering operations, refuelling the *Saint-Malo*, the first of two new electric-hybrid ships entering service from the city.

The *Saint-Malo*, operated by Brittany Ferries, was refuelled by the *Optimus*, a bunkering barge operated by Titan Clean Fuels.

"Later this year we'll also be offering clean electricity to ships that are able to plug into our new shore power system," Ben McInnes, Harbour Master at Portsmouth International Port, said.

Gregoire Hartig, Commercial Director at Titan, also welcomed the milestone, hailing Brittany Ferries as a pioneer in the sector. ■



LNG vessel

Hong Kong completes first LNG bunkering operations

Authorities in Hong Kong have completed the island's first LNG bunkering operation, refuelling a dual-fuel containership at South Cheung Chau anchorage.

The operation was conducted by the bunker vessel *Xin Ao Pu Tuo Hao*. LNG fuel was supplied to the *Zim Amber*, a containership with capacity for 8,200 TEU.

"Despite prior government announcements, the event remained low-profile," Mehdy Touil, LNG Lead Specialist at Calypso Commodities, commented, noting that insiders suggest there may be a more publicized second transfer in

February following a trial run.

The *Xin Ao Pu Tuo Hao* was built by Dalian Shipbuilding Industry in 2018 and is the first domestic newbuilding LNG bunker vessel that is classed by the China Classification Society (CCS) in line with the Rules for Liquefied Natural Gas Bunkering Vessel.

The bunker vessel is currently contracted by ENN Energy Holdings, one of the largest LNG users

in China, and is operated by Tianjin Southwest Maritime.

LNG cooperation

In a strategic move to further strengthen Hong Kong's LNG bunkering sector, CLPe Holdings, a subsidiary of electricity group CLP, and state-owned oil and gas giant China National Offshore Oil Corporation (CNOOC) entered into a co-operation framework agreement late last year.

The partners now aim to establish a joint venture focused on providing LNG bunkering services in the port of Hong Kong, not only supplying fuel to ships in Hong Kong but also supporting the broader development of the LNG bunkering sector within the Greater Bay Area.

This initiative follows the Hong Kong government's recently unveiled Action Plan on Green Mar-

itime Fuel Bunkering, which aims to transform Hong Kong into a leading green maritime fuel bunkering centre.

200,000t target

Key objectives include adhering to IMO net-zero carbon emissions targets, reducing carbon emissions from Hong Kong-registered ships by at least 11%, and ensuring that 55% of diesel-fuelled vessels in the government fleet switch to green maritime fuels by 2026.

The government anticipates that by 2030, Hong Kong will be delivering more than 200,000 tonnes of green maritime fuels, with bunkering operations carried out over 60 times a year. This ambitious goal is supported by a partnership between bunker service provider Chimbusco Pan Nation Petro-Chemical (CPN) and Hong Kong and China Gas Company (Towngas).



The *Xin Ao Pu Tuo Hao*

Vancouver Fraser Port celebrates first STS LNG bunkering

Authorities at Vancouver Fraser Port in Canada have overseen the first ship-to-ship LNG bunkering procedure at the site, with plans to expand operations this year.

The refuelling process was completed by the LNG bunkering vessel *Seaspan Lions* in late January and involved transfer of fuel to the chemical/oil products tanker *Pacific Jade*.

"Completing our first successful bunkering in local waters is a major milestone for Seaspan Energy and marks the introduction of a low-carbon fuel alternative from the Port of Vancouver and beyond," Harly Penner, President of Seaspan Energy, commented.

Significant stride

The port authority recently made a significant stride in facilitating the use of LNG — one of the most widely adopted alternative marine fuels — for cargo ships calling Vancouver by authorizing LNG bunkering operations to take place within the limits of the port.

"In November 2024, North Vancouver's Seaspan Energy received the first-to-be-issued LNG bunkering accreditation from the port authority," a spokesperson for Vancouver Fraser Port Authority said, calling the accreditation "a significant stride in facilitating the use of LNG — one of the most widely adopted alternative marine fuels".

Seaspan Energy's accreditation was issued following rigorous risk assessments and mitigation processes that considered international best practices around safety.

Low-carbon fuel

The *Seaspan Lions* is one of three sister vessels that Seaspan has deployed for LNG bunkering vessels, primarily on the West Coast of North America. All three vessels have LNG capacity of 7,600 cubic

metres and were built by CIMC Sinopacific Offshore & Engineering in China.

"With two of our LNG bunkering vessels now operational and our first bunkering in the books, our message to ship owners globally is that we now offer an ac-

credited LNG bunkering option here in Vancouver," Penner added.

The ships are powered by three dual-fuel generators and fitted with direct current power distribution systems. Propulsion is delivered by two 1,600 KW azimuth thrusters.



Seaspan Lions at Port of Vancouver

Singapore record LNG bunkering supports transition goals

Authorities in Singapore have reported a significant surge in LNG bunker demand for 2024, solidifying the nation's status as a global leader in bunkering operations.

The Maritime and Port Authority of Singapore (MPA) announced a total registered bunker sales volume of 54.92 million tonnes in 2024, marking a 6.0% year-on-year increase, with LNG sales rising from 0.11 million tonnes in 2023 to 0.46 million tonnes in 2024.

"Singapore has made steady progress as the world's largest bunkering port, supplying over a sixth of the total an MPA spokesperson commented, adding "total bunker sales and sales of alternative bunker fuels, reached new highs in 2024."

Electronic bunkering

The increase in bunker sales comes in parallel with growth in total cargo handling at the port of Singapore, which rose 5.2% to 622.67 million tonnes in 2024, an increase from 592.01 million tonnes the previous year.

Starting April 1, 2025, Singapore is set to revolutionize its bunkering sector by mandating digital bunkering services and electronic bunker delivery notes (e-BDN) as the default. This shift is expected to streamline operations, bolstering security, and enhancing transparency. It is also expected to save around 40,000 man-days annually.

"Singapore is the first port to implement digital bunkering at



STS bunkering in Singapore

scale for bunkering operations following approval by the International Maritime Organization (IMO) to use eBDN at the 80th meeting of the Marine Environment Protection Committee," a spokesperson for the authority said.

Diverse standards

The surge in demand underscores Singapore's steady progress to diversify its fuel offerings and advance maritime decarbonisation efforts despite strained global supply chains.

"An Expression of Interest was

launched in December 2024 to explore scalable solutions for sea-based LNG reloading to complement the existing onshore LNG bunkering storage and jetty capacities and support the supply of e-/bio methane as marine fuel in Singapore," the MPA notes.

In March 2024, Fortescue, backed by the MPA, successfully used ammonia blended with diesel as marine fuel aboard the *Fortescue Green Pioneer*. This world-first operation marked a significant milestone for the transition fuels and EnterpriseSG and MPA are cur-

rently in the process of developing comprehensive ammonia bunkering standards, slated for release later this year.

In May, the first simultaneous methanol bunkering and cargo operations (SIMOPS) were conducted at Tuas Port, utilising a novel mass flow metering system. The MPA is using this trial along with data from digital bunkering, to develop a new Techni-

cal Reference for methanol bunkering.

While decarbonisation efforts will continue the outlook for 2025 is likely to be shaped by geopolitical dynamics and shifting trade patterns. The MPA anticipates "steady growth for Maritime Singapore in 2025", driven by strong tripartite cooperation with the industry, unions, government, a robust maritime R&D community, and "Singapore's continued value offering as a preferred hub for ship operations and maritime business". ■



Fortescue Green Pioneer in Singapore



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Spain LNG bunkering growth shapes European outlook

Terminals in Spain more than doubled the amount of LNG they bunkered last year, according to the latest data from gas specialist Enagás.

The findings show growing demand for the fuel in the Iberian Peninsula, with gas arriving in Spain from a total of 14 different countries over the course of 2024.

“Spain contributed to the security of supply of the rest of Europe by supplying a total of 34.5 TWh of natural gas, both through interconnections and LNG ship loading,” a spokesperson for Enagás said.

Comprehensive monitoring

In a review of last year’s performance, Enagás noted that LNG loading operations in Spain were completed in line with the European Union’s 14th package of sanctions against Russia for the invasion of Ukraine.

Spain was the first EU country to define detailed rules and procedures to monitor LNG imports to ensure that bunkered LNG does not originate from Russia. This has involved comprehensive monitoring, control and authorisation of ship loadings within the Spanish Gas System.

“In a European energy environ-

ment marked by the conflicts in Ukraine and the Middle East, the Spanish gas system has operated 24 hours a day, every day of the year with 100% availability, demonstrating great robustness and flexibility,” Enagás comments.

Strategic LNG entry point

The group also pointed to the broad diversification of supply as a positive for the country’s longer-term goal to become as a strategic entry point for LNG into Europe and a key partner in achieving sustainability targets.

“Terminals carried out more than twice as many LNG bunkering loadings in 2024 (3.8 TWh) than in 2023 (1.5 TWh), thus contributing to the decarbonisation of the maritime sector,” a spokesperson for the firm noted.

Headquartered in Madrid, Enagás is the Technical Manager of



LNG refuelling nozzle

the Spanish Gas System and the main carrier of natural gas in Spain. The company operates an extensive network of over 12,000 kilometres of gas pipelines and manages three strategic underground storage facilities located in Huesca, Bizkaia, and Guadalajara.

The group owns and operates six LNG terminals positioned in the Mediterranean, Cantabrian, and Atlantic regions of Spain, comprising facilities in Huelva, Barcelona, Cartagena, Gijón, Bil-

bao (BBG), and Sagunto (Saggas).

The group also reported that total natural gas consumption for Spain in 2024 fell to 311.7 TWh, a decrease of 4.2% compared to the previous year, due to lower gas demand for power generation, which stood at 74.7 TWh, a 22.0% decrease.

NEWS NUDGES

LNG crosses US\$1,000/mt barrier

The cost of LNG with EU regulations added has surpassed US\$1,000 per tonnes, following a surge in Rotterdam’s VLSFO-equivalent LNG price.

This substantial rise has increased the premium of LNG compared to traditional fuels as the additional cost over VLSFO surged by \$36/mt to reach \$242/mt, while the premium over LSMGO jumped by \$52/mt to \$146/mt.

When factoring in the EU Allowance and FuelEU Maritime expenses for journeys between EU ports, refuelling LNG in Rotterdam will now surpass \$1,000/mt for vessels equipped with Otto MS engines, which exhibit the highest default methane slip (3.1%) under the FuelEU regulation.



Bilbao LNG terminal

China backs LNG as transition fuel in Europe

China has strengthened its presence in the European LNG sector, with the launch of the first bunkering operation on the continent by China Marine Bunker (Chimbusco).

The state-owned supplier of marine fuel completed its first bunkering operation at the port of Zeebrugge, Belgium late last year and is now targeting further expansion in Europe.

"This marked the first time that Chimbusco completed an LNG bunkering operation in Europe, signalling the official expansion of its green energy services to overseas markets," a spokesperson for the firm said.

Established in 1972, Chimbusco is a subsidiary of PetroChina, one of the largest oil and gas producers and distributors in the world.

Favoured fuel choice

The bunker firm supplied LNG to the *Peony Leader*, a state-of-the-art LNG dual-fuel car carrier, with

12 decks and capacity of 7,000 CEU.

"In recent years, while excelling in traditional ship fuel supply, Chimbusco has actively monitored the development of new ship fuel markets," a spokesperson for the firm commented. "Marine LNG, as a clean alternative fuel, can significantly reduce the emission of these pollutants, making it widely favoured and applied."

The *Peony Leader* was built by Guangzhou CSSC Longxue Shipbuilding and delivered in September 2024 to its owner COSCO Shipping Specialized Carriers.

PCTC expansion

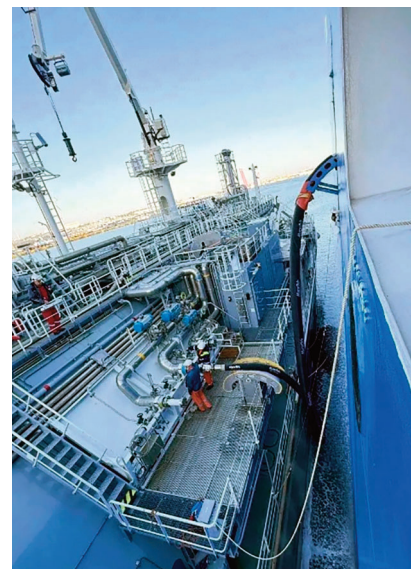
COSCO Shipping, in collaboration with SIPG Logistics and Anji Logis-

tics, expects to take delivery of six more 7,500 CEU dual-fuel LNG car carriers over the next two years, further bolstering its fleet with advanced, eco-friendly vessels.

"In recent years, COSCO Shipping Specialized Carriers has been proactively developing a 'three-core and three-chain' automotive logistics industry framework," the firm notes. "This initiative is centred on constructing a green and efficient world-class fleet. Between 2024 and 2026, over 20 PCTCs are expected to be delivered and operational, forming approximately 30 specialized PCTC fleets."

Headquartered in Shanghai,

COSCO is a state-owned conglomerate and one of the largest container carriers in operation. ■



Chimbusco refuelling the *Peony Leader*

Monjasa expands LNG fuelling option in UAE

Danish oil and shipping group Monjasa has advanced plans to expand its LNG bunkering operations in the UAE, following the introduction of the emirate's first dedicated LNG refuelling vessel.

The *Green Zeebrugge* arrived in Dubai from Amsterdam in December, with its arrival coming in response to growing demand for alternative fuels in the region. It completed the region's first LNG bunkering operation in early January, refuelling the *Costa Smeralda*, a cruise ship owned by Costa Cruises, part of Carnival Corporation.

"Deploying the *Green Zeebrugge* is the first important step in introducing LNG as a new ma-

rine fuel option in the UAE. Looking ahead, continued close collaboration with our local maritime partners is crucial in further exploring new supply chains and positioning the UAE as a leading shipping hub in alternative fuels too," Anders Østergaard, CEO of Monjasa Group commented.

Advanced fuel mix

Monjasa is now working with port authorities, energy companies and shipowners in the UAE, and across

the region, to identify and establish viable local LNG bunkering infrastructure. The partners expect to offer a comprehensive fuel mix, including Very Low Sulphur Fuel Oil, Marine Gas Oil, High-Sulphur Fuel Oil, biofuels and LNG at UAE ports going forward.

"Monjasa's role is to keep challenging the status quo and providing new market opportunities to shipowners who are increasingly looking for ways to decarbonise their vessels," Østergaard said.

Measuring 107.6 metres in length and 18.4 metres in width, the *Green Zeebrugge* adds capacity for 5,000 cubic metres of LNG and while welcomed in the region it is likely only a small part of the capacity needed.

Regional development

Emile Hoogsteden, CEO of Sohar Port and Freezone has forecast a growing role for the Middle East in shaping global LNG bunkering in

the face of rising demand, noting that the port authorities focus is on ensuring infrastructure "supports both immediate needs and future scalability".

Data from standards agency DNV shows that there are now over 600 LNG-fuelled vessels in operation and almost 700 on order, compared to just 62 LNG-fuelled vessels in 2015.

Classification society Bureau Veritas expects LNG demand will more than double by 2027, reaching up to 12 million tonnes annually, driving an "urgent need" to expand the bunkering fleet, with an estimated "eight additional LNG bunkering vessels per year" required to meet demand.

"We are excited about this first successful supply operation and to pioneer LNG as a new marine fuel option in the UAE," Østergaard said. "Together, we are all striving to position the UAE as a leading shipping hub in alternative fuels too." ■



The *Green Zeebrugge*

Seaspan completes trio to start LNG bunkering operations

Canadian shipping line Seaspan Energy has taken delivery of its third LNG bunkering vessel from Nantong CIMC Sinopacific Offshore & Engineering, following two sister vessels delivered last year.

The *Seaspan Baker* was completed at CIMC's shipyard in Nantong, China and was first launched in July last year.

"The *Seaspan Baker* is currently targeted to service the Long Beach container ship market and will join the *Seaspan Lions* in providing LNG fuelling services for vessels on the West Coast of North America," a spokesperson for Seaspan commented.

Vard marine design

The new addition will now join sister vessels *Seaspan Garibaldi* and *Seaspan Lions* in the fleet. Both vessels currently operate on the West Coast of North America, although *Seaspan Garibaldi* may be relocated to the Panama region.

All the new vessels are based on the same design, measuring 112.8 metres in length, 18.6 metres in width, 5 metres in draft, and with a design speed of 13 knots.

All three were designed by Canadian naval architects Vard Marine based on requirements developed in partnership with the Port of Vancouver, Canada's largest port, and FortisBC, the owner of the Tilbury LNG facility in British Columbia.



The *Seaspan Baker*

"The design is focused on safe, efficient, and economical refuelling of multiple ship types with an ability to transfer to and from a wide range of terminals," a Seaspan spokesperson said. "The design will allow the vessel to engage in ship-to-ship LNG transfer along with coastal and short-sea shipping cargo operations."

All three ships are Canadian-flagged ship and classified by standards agency by Bureau Veritas.

First STS LNG bunkering

The delivery of *Seaspan Baker* follows the first ship-to-ship LNG bunkering operation by the trio in December, when *Seaspan Garibaldi* refuelled a container-

ship at the Port of Long Beach, California.

"Our first ship-to-ship LNG bunkering has been five years in the making and our team is so proud of this milestone especially as this represents the first ship-to-ship bunkering on the West Coast of North America," Harly Penner, Senior Vice President at Seaspan Energy, said. "We are committed to offering large vessel operators a low-carbon fuel solution and this is the first of many successful operations to support a sustainable shift in the global marine sector."

The operation marked the beginning of Seaspan's service offering on the West Coast of North America.

NEWS NUDGES

Stolt-Nielsen completes Avenir LNG buyout

Norwegian bulk liquid specialist Stolt-Nielsen has completed a buyout of its joint venture partners in LNG firm Avenir, acquiring a 94.37% stake.

Golar LNG, which is controlled by Tor Olav Troim, sold its 23.5% shareholding for US\$40 million, while the Hoegh family holding company Aequitas also divested its shares. Stolt-Nielsen stated it plans to make an offer for the remaining shares.

The transaction values Avenir at approximately \$170 million on a 100% basis, according to data from Fearnley Securities. This places the firm roughly 5% above the current market capitalisation on the Norwegian Over-The-Counter Market list in Oslo. The sale is anticipated to be completed during the first quarter of 2025, pending the fulfilment of conditions under the share purchase agreement. No additional financial details were disclosed.

The deal saw Stolt-Nielsen buy stakes from its partners Golar LNG and the Hoegh family.



Seaspan bunker vessels at dock



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A handwritten signature in black ink, likely belonging to Jill Evanko.

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EMA advances LNG supply management agenda

The Energy Market Authority (EMA) of Singapore has progressed plans to strengthen the country's LNG trading infrastructure, following an agreement with PetroChina International (PCI).

The deal is part of a wide ranging strategy by the EMA that aims to decarbonise the power sector and achieve net zero emissions over the next 25 years through increased use of LNG.

"Singapore aims to achieve net zero emissions by 2050," Soh Sai Bor, Assistant Chief Executive of EMA, explains, "While we explore various lower carbon energy sources, natural gas will continue to play a crucial role in safeguard-

ing our energy security."

Knowledge sharing

The agreement with PetroChina will see the two partners explore collaboration opportunities to strengthen LNG supply chains, promote knowledge exchange around LNG supply and demand fundamentals, and evaluate joint procurement opportunities.

"Our partnership with PCI will enhance our knowledge and ex-

pertise in the management and procurement of LNG supply, and also bring benefits to both parties through joint LNG procurement to secure better contract terms and pricing," Bor adds. The agreement

with PetroChina is just one of many multilateral agreements signed by EMA recently to strengthen Singapore's global position as an LNG hub. Deals with KOGAS of South Korea and JERA of Japan were agreed in 2024 and are forecast to increase demand for LNG over the coming years.

Decarbonized grid

The EMA is also looking further ahead to create a decarbonized ASEAN Power Grid (APG) and recently signed a Memorandum of Understanding with the Ministry of Climate and Enterprise of Sweden. This MoU will focus on the development of opportunities for multilateral and multidirectional electricity trading across the region and facilitate knowledge exchange on regional interconnectivity, ammonia and hydrogen, and nuclear safety.

"We look forward to working with Sweden to advance regional decarbonisation efforts and achieve a sustainable energy future for all," Puah Kok Keong, Chief Executive of EMA, said.

The EMA operates under the Ministry of Trade and Industry, to manage regulatory functions and power grid operations. It oversees electricity and gas systems, regulates the industry, and promotes innovation. It was the driving force behind the formation of the Singapore LNG Corporation (SLNG) to manage the LNG Terminal, which has seen major developments.

In the third quarter last year, the EMA approved a proposal to import 1.75 gigawatts of electricity from Australia, sourced from solar power in Australia's Northern Territory and transmitted via new subsea cables spanning 4,300 kilometres.



Power plant Singapore

FueLNG and EPS mark LNG milestone in Singapore

Singapore's fuelling specialist FueLNG and ship management group Eastern Pacific Shipping (EPS) have completed the 300th LNG STS bunkering in Singapore, marking a milestone for the island state.

The landmark operation was carried out by the bunker vessel *FueLNG Venosa* in late December 2024 at the Raffles Reserve Anchorage.

"Reaching our 300th LNG bunkering milestone, alongside FueLNG's 300th LNG STS bunkering in Singapore, is a testament to the progress we are making together towards sustainable shipping. This achievement highlights the collaboration and trust among key stakeholders, reinforcing our collective commitment to the industry's decarbonisation. We are proud to celebrate this shared milestone with FueLNG in a year of record-breaking progress," Suraj Sundaresan, General Manager (Operations) at EPS, commented.

PCTC refuelling

A total cargo of 1,628 cubic meters of LNG was transferred to the

pure car truck carrier (PCTC) *Lake Shirasagi*, one of the newest in the fleet of EPS.

"Delighted to have arranged this delivery on behalf of our Customer EUKOR with Shell LNG," Rob Daubeney, Senior Sales Executive with World Kinect Corporation, commented.

Headquartered in Florida, World Kinect Corporation, formerly known as World Fuel Services, is one of the world's largest seller of marine fuels by volume.

Steady progress

Measuring 116 metres in length and 24.5-metres in width, the *FueLNG Venosa* was Singapore's second ever LNG bunker vessel and has a deadweight of 12,300 tonnes, draught of 6.5 metres, and LNG cargo capacity of 18,000 cubic metres.

The bunker barge completed

its first refuelling operation in 2023, coinciding with the 100th LNG bunkering in Singapore.

FueLNG, a joint venture between Seatrium Offshore & Marine and Shell Singapore, has been at the forefront of developing LNG bunkering infrastructure in Singapore since obtaining its LNG bunker supplier license from the Singapore Maritime and Port Au-

thority in 2016.

"We extend our deepest gratitude to our stakeholders - Shell, Seatrium, and our valued customers — for their support. A special thanks to the Maritime and Port Authority of Singapore (MPA) and SLNG - Singapore LNG Corporation Pte Ltd for their critical role in enabling these achievements," a spokesperson for FueLNG said.



FueLNG Venosa conducting STS bunkering

SPIG targets rapid LNG bunkering growth

Authorities at the port of Shanghai have announced plans to deliver LNG bunkering capacity of 1 million cubic metres by 2030, as part of an ambitious strategy to make the site a hub for green fuelling.

Shanghai International Port Group (SIPG) set the goal as it sees demand for LNG soaring and prepares for a new wave of refuelling infrastructure to serve the next generation of super vessels that will dock at the port.

“LNG bunkering services are becoming regular services at the port, with expected annual bunkering volume reaching 450,000 m³ in 2024, a growth of over 70%,” a spokesperson for SPIG said.

Double-million target

Alongside SPIG’s target for LNG, the authority is also aiming to build green methanol bunkering capacity to 1 million metric tonnes (mt) by 2030.

This so called ‘double-million’ target will see the port deploy some of the most comprehensive bunkering infrastructure in the world.

Last year, Shanghai Port bunkered a total volume of 730,000 cubic metres for international vessels, completing a



Yangshan terminal

record 125 bonded LNG bunkering operations.

Complex fuelling landscape

Shanghai Port has been the world’s busiest container port since 2010 and handled more than 50 million TEUs in 2024. It is one of only four port-cities in the world to be cate-

gorised as a large-port Megacity.

The move to focus on both LNG and methanol growth comes as SPIG sees increasing fragmentation in the fuelling landscape, with major shipping lines opting for a plethora of different vessel types to insure against future shifts in pricing and market dynamics.

The port currently operates two

LNG bunkering barges and at the start of the year launched its first methanol bunkering vessel. The Haigang Zhiyuan transferred 3,000 tonnes of methanol to the Anne Maersk on 1 January 2025 at Yangshan Port. This follows an MoU signed between SIPG and Maersk to develop vessel-to-vessel bunkering operations for green methanol. ■



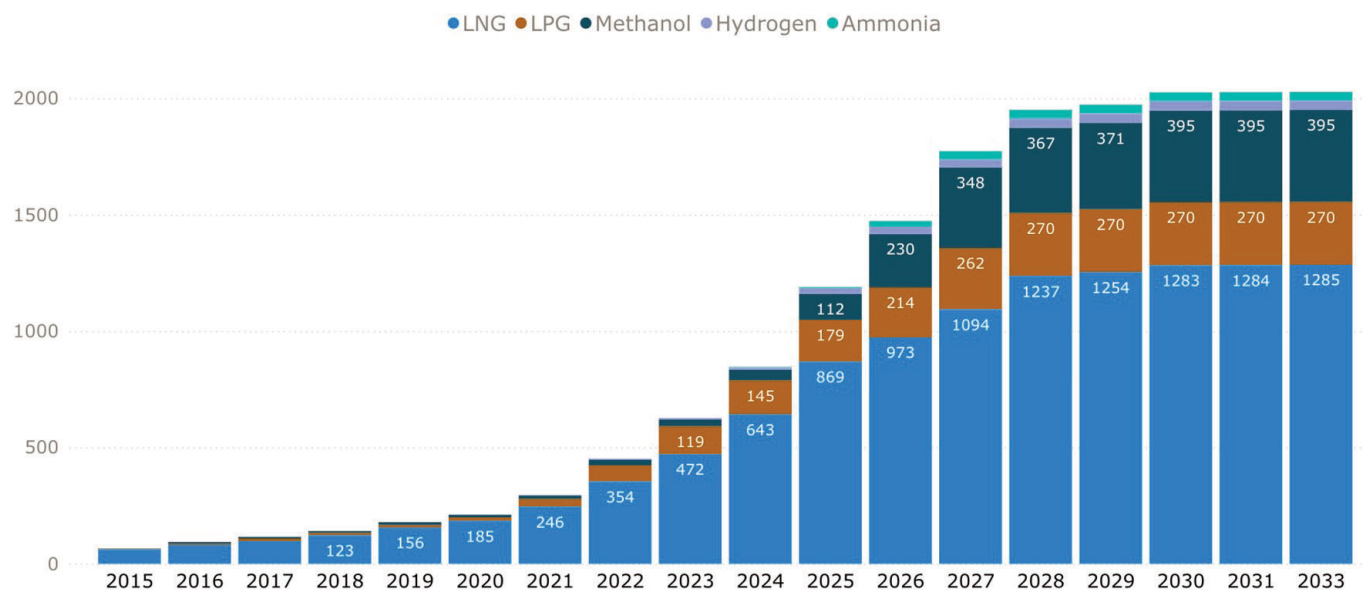
Shanghai Port

WORLD SMALL SCALE LNG FLEET*

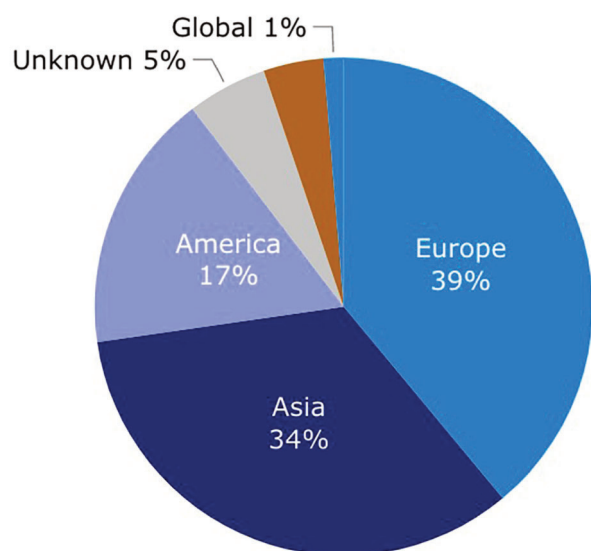
Built	Name	CBM	Cargo Type	Trading Area	Trading in LNG?	Ship Owner / Operator
1974	Seagas	187	LNG	Sweden	Yes	AGA
1988	Kayoh Maru	1,517	LNG	Japan	Yes	Daiichi
1993	Aman Bintulu	18,928	LNG	Malaysia - Japan	Yes	Perbadanan/NYK
1996	Surya Aki	19,475	LNG	Indonesia - Japan	Yes	MCGC
1997	Aman Sendai	18,928	LNG	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	Titan Vision	12,000	LNG/LPG/Ethylene	Europe	No	Titan LNG
2011	Titan Unikum	12,000	LNG/LPG/Ethylene	Europe	No	Titan LNG
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 Innvovation	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
2018	HUA XIANG 8	13,720	LNG	China	Yes	Zhejiang Huaxiang
2019	Blue Whale	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

Built	Name	CBM	Cargo Type	Trading Area	Trading in LNG?	Ship Owner / Operator
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	Levante LNG	12,500	LNG	Spain	Yes	Knutsen OAS
2023	SM Jeju LNG3	7,500	LNG	Korea	Yes	Korea Line
2023	New Frontier 2	18,000	LNG	USG	Yes	Shell
2023	Krios	4,200	LNG	Benelux	Yes	Titan LNG
2023	Alice Cosulich	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	Clean Everglades	5,500	LNG	USG	Yes	PNE
2023	FueLNG Venosa	18,000	LNG	Singapore	Yes	FueLNG
2023	LNG Erasmus	8,000	LNG	NWE	Yes	Shell
2023	Energy Stockholm	8,000	LNG	NWE	Yes	Shell
2024	Coral Evolution	30,000	LNG	Australia	Yes	Anthony Veder ?
2024	Progress	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 Garbaldi	7,600	LNG	Panama	Yes	Seaspan ULC
2024	Paolina Cosulich	8,000	LNG	Mediterranean	Yes	Fratelli Cosulich
2024	Huaihe Nengyuan Qihang	14,000	LNG	China	Yes	Anhui Changjiang LNG
2024	Keys Azalea	3,500	LNG	Japan	Yes	Keys Bunkering West Japan
2024	Seaspan Lions	7,600	LNG	Canada	Yes	Seaspan ULC
2024	Hai Yang Shi You 302	12,000	LNG	China	Yes	CETS (CNOOC)
2025	Axpo TBN	7,500	LNG	Italy	Yes	Axpo
2025	Seaspan Baker	7,600	LNG	Canada	Yes	Seaspan ULC
2026	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2026	ScaleGas TBN	12,500	LNG	Spain	Yes	ScaleGas
2026	Vitol TBN 1	12,500	LNG	Worldwide	Yes	Vitol
2026	Total TBN	18,600	LNG	Worldwide	Yes	Total Energies
2027	Avenir TBN (option)	20,000	LNG	Worldwide	Yes	Avenir LNG
2027	Vitol TBN 2	20,000	LNG	Worldwide	Yes	Vitol
2027	Peninsula TBN	18,000	LNG	Europe	Yes	Peninsula
2027	Fuzhou Wuyang TBN	12,000	LNG	China	Yes	Fuzhou Wuyang Refined Oil Trading
2027	Equatorial Marine TBN	20,000	LNG	China	Yes	Equatorial Marine
2028	Fuzhou Wuyang TBN	12,000	LNG	China	Yes	Fuzhou Wuyang Refined Oil Trading

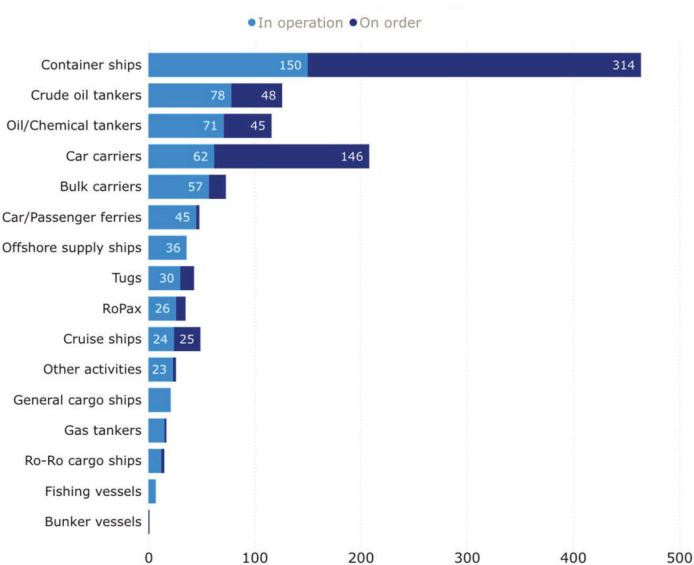
Growth of alternative fuel uptake by number of ships



LNG Bunker Fleet By Region



LNG-fuelled fleet by ship type



Location of worldwide LNG bunker fleet by region

