

LNG increasingly alternative fuel of choice for container lines



The number of LNG-fueled container ships on order has grown from 194 in late 2023 to 362 as of mid-October. Photo credit: Mariusz Bugno / Shutterstock.com.

[Peter Tirschwell, Vice President](#) | Oct 27, 2025, 3:52 PM EDT

With the global shipping decarbonization agenda brought to an abrupt halt at the International Maritime Organization (IMO) in mid-October, an emerging reality is taking hold: LNG is becoming the go-to alternative fuel of choice for container lines.

Increasingly, carriers are committing to LNG-fueled container ships over other alternative fuels such as methanol, seeing LNG as a viable and easily malleable step toward a zero-carbon future by 2050, as enshrined in current IMO policy.

The number of LNG-fueled container ships on order has grown from 194 in late 2023 to 362 as of mid-October, according to S&P Global Market Intelligence. What's more, the percentage

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of vessels on order capable of running on LNG has grown to 40% from 23% during the same period, while the percentage of methanol-powered ships was unchanged at 15%. The 218 LNG container ships currently in operation represent 3.5% of the global container ship fleet. S&P Global is the parent company of the *Journal of Commerce*.

A senior carrier executive who asked not to be identified noted that even before the IMO punted on its net-zero framework, LNG had already become the “mainstream marine fuel” for new vessel orders.

“We could see [LNG] becoming even more significant in the current environment, because well-to-tank data is improving, methane slip will be dealt with and we see fossil but also bio and synthetic as pathways for LNG,” the executive added.

Using LNG as an interim alternative fuel solves multiple problems for container lines. It can reduce absolute carbon emissions by up to 20%, according to the American Bureau of Shipping, so progress toward decarbonization can be demonstrated to customers and the public. LNG is also more widely available than methanol, the supply of which is constrained and prices stubbornly high and will likely remain so due to IMO inaction on its zero-emissions framework. Maersk, for example, cited a lack of adequate supply when it pivoted from methanol to LNG for its next round of 50 to 60 vessels.

And crucially, all LNG container ships in operation and on order have dual-fuel engines, meaning they can burn either LNG or traditional bunkers. That gives carriers a high degree of flexibility in terms of which fuel a ship actually uses at any given time.

Depending on price and availability, carriers can operate using LNG or traditional bunkers or a combination, something vessel operations executives say is already happening. Estimates of the amount of LNG used vary widely; some sources that spoke with the *Journal of Commerce* said LNG-capable ships only burn LNG 5% to 10% of the time, while others say it's closer to 50%.

In other words, not only is LNG itself a transitional fuel, but LNG ships are being used as a transitional solution.

Being the most consumer-facing maritime sector, container lines have long felt a need to be at the forefront of decarbonization. Through the World Shipping Council (WSC), they supported the IMO Net-Zero Framework that was postponed for at least a year following strident opposition from the US. Patrick Verhoven, managing director of the International Association of Ports and Harbors, described the delay as a “major setback for the maritime industry.”

Dual-fuel container ship and vehicle carrier orders account for 79% of the current order book, compared with 14% for the rest of the fleet, including tankers and bulk carriers, according to the WSC.

With the order book dominated by the major carriers, given actual environmental regulation — in the case of the EU — and possible future requirements from the IMO, their effort to secure LNG tonnage at scale raises the bar for new entrants and smaller carriers looking to scale.

LNG is more widely available than other alternative fuels such as methanol and, at least currently, is about 25% more expensive than very low-sulfur fuel oil. That, plus the ability to limit use of LNG, means carriers aren't forced to charge customers a premium, which would undermine their competitiveness.

In addition, solutions are being developed to mitigate methane emissions, which are 80 times worse for the environment than carbon dioxide, from LNG power plants. For example, a consortium including Mitsui O.S.K. Lines last year said it achieved a 93.8% reduction of methane slip from LNG-fueled vessels through catalyst and engine improvements.

Still, LNG ships come with their own operational issues. The LNG tank must be cooled to -162 degrees C (-260 degrees F), and a minimum quantity must always be kept inside; otherwise, the fuel can't be bunkered until re-cooled.

Re-cooling, in turn, requires the ship to be idled for three days, with costs that can run into the hundreds of thousands of dollars, said Nils Roche, CEO of Solvens Advisory and former deputy general manager for operations at PIL.

As a result, ship operators frequently use traditional bunkers as their primary fuel and LNG only at selected times. If the LNG is not used for propulsion, it's used to run auxiliary engines that create power for electricity and air conditioning onboard the ship.

Roche said restrictive contracts with LNG suppliers also complicated matters. Fuel suppliers require one month's notice to bunker a ship with LNG, compared with just two days' notice for conventional marine fuel, cancellation fees can run into the millions, and ships typically only have a two-to-three-day window for bunkering.

"If you are not available at that point, they will go to someone else," he said. "And you just pray that somebody else in another couple of days will not make it, and you can take their slot."

Price is naturally a big consideration. Carriers will sometimes avoid LNG bunkering to the extent possible during December, January and February, due to higher winter prices.

Contact Peter Tirschwell at peter.tirschwell@spglobal.com.

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