

Marine transport: the new growth frontier for LNG demand?



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Executive Summary

Marine LNG is shifting from a niche, largely captive gas outlet to a growing and increasingly price-sensitive source of demand. In the GECF Reference Case Scenario (RCS), marine LNG consumption more than doubles from nearly 19 bcm in 2025 to around 45 bcm by 2035. Bunkering is the main growth engine, rising from 6 bcm to about 22 bcm and accounting for nearly two-thirds of the increase. Because most of this growth comes from dual-fuel vessels, around half of marine LNG demand is expected to be price-responsive by 2035. These vessels choose between LNG and oil-based fuels mainly on relative delivered prices, although environmental considerations also play a role, including emissions compliance and the carbon-footprint commitments of shipowners and charterers. Growth will therefore depend as much on fuel competitiveness (shaped by subsidies and carbon pricing) and bunkering availability at ports as on fleet expansion.

Regulation and economics both support this trajectory. FuelEU Maritime and the EU ETS already apply to shipping, while the IMO Net-Zero Framework remains under negotiation. LNG offers an indicative 20–25% reduction in CO₂ emissions compared with conventional marine fuels, substantially lower sulphur oxide and particulate emissions, and a pathway to bio-LNG and synthetic methane using the same engines and infrastructure. The Middle East conflict has increased supply uncertainty, but it has also disrupted oil supplies: under a Strait of Hormuz closure scenario, LNG remains the most cost-competitive of the main marine fuels. In the Extended Disruption scenario, marine LNG demand in 2035 is only around 7% below the RCS.

The principal constraint is infrastructure. DNV estimates that 165–208 LNG bunker vessels will be required by 2030; even if all 42 vessels on order are delivered, the fleet would reach only around 109, leaving a shortfall of roughly 55–100 vessels, compounded by geographical imbalances and limited shipyard capacity. Accelerated investment across the bunkering value chain, including bunker vessels, storage and dedicated berths, is therefore essential to meet projected demand and support the sector's emissions-reduction objectives.

Introduction

Decarbonising the global transport sector remains one of the most complex challenges of the energy transition. While electrification is advancing rapidly in passenger vehicles, urban mobility and rail transport, a significant share of transport demand lies in segments that are inherently difficult to electrify. Maritime shipping, which is considered a “hard-to-abate” sector, is characterised by high energy density requirements, long operational ranges, and extended asset lifetimes. As a result, the transition pathway for this sector is more gradual and technologically uncertain, requiring scalable and reliable fuel solutions that can deliver both emissions reductions and operational feasibility in the near to medium term.

LNG offers an established fuel option for these requirements. PETRONAS Marine cites an indicative 20–25% reduction in carbon dioxide (CO₂) emissions compared with conventional

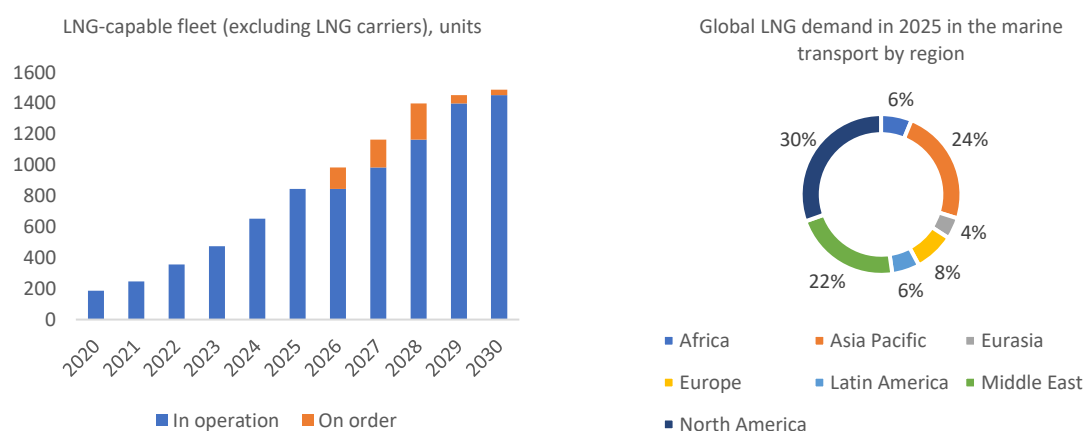
marine fuels. This combustion-related benefit should be distinguished from the full well-to-wake greenhouse gas (GHG) balance, which depends on engine efficiency, methane slip and upstream emissions. DNV also identifies substantial reductions in sulphur oxides and particulate matter, while nitrogen oxide reductions depend on engine technology. Existing supply chains, LNG engines and bunkering facilities provide a platform for deployment and the subsequent use of liquefied biomethane and synthetic methane.

Regulation strengthens the incentive to reduce marine fuel emissions. The European Union's (EU) FuelEU Maritime regulation has applied since 1 January 2025, alongside the EU Emissions Trading System (EU ETS) for shipping. At the International Maritime Organization (IMO), the proposed Net-Zero Framework remains subject to further negotiation and adoption; the April–May 2026 meeting agreed further work ahead of the next committee session. These measures make lifecycle performance and fuel availability central to investment decisions. The central argument of this commentary is that expanding bunkering demand could make around half of marine LNG consumption price-responsive by 2035, increasing the importance of delivered fuel costs and infrastructure availability.

1- Marine LNG demand today

In 2025, LNG consumption in maritime transport reached nearly 19 bcm, including fuel used by LNG carriers. North America, Asia Pacific and the Middle East together represented approximately three-quarters of global marine LNG demand, with shares of 30%, 24% and 22%, respectively, reflecting their role in LNG trade. LNG bunkering accounted for approximately 6 bcm, or around 32% of the total, concentrated in six major bunkering “hubs”: Rotterdam/Antwerp/Zeebrugge in NW Europe; the Western Mediterranean, focused on the ports of Fos, Barcelona, Gibraltar and Algeciras; Singapore; Shanghai/Ningbo; Hong Kong/Yantian; and the US East Coast, based around the Florida ports, the Bahamas ports and the port of Savannah.

Figure 1 LNG-capable fleet, units and LNG demand by region



Source: DNV, GECF

Marine LNG demand is expected to continue increasing alongside global LNG trade and the expansion of the LNG-fuelled fleet. To accommodate this growth, countries are accelerating investment in bunkering infrastructure, including dedicated supply vessels, storage facilities and terminal loading capacity.

By mid-2026, 67 LNG bunker vessels were operating worldwide, with a further 42 on order for delivery through 2029. Although European owners dominated earlier orders, recent investment activity points to a growing role for Asia Pacific in expanding bunkering capacity. In Singapore, eight new LNG bunker-supply licences, effective from September 2026, support investment in integrated fuel supply, storage and vessel-delivery services. China is also expanding its bunker fleet, with orders announced during the first half of 2026 involving Shanghai International Port Group, Sinopec Clean Energy and a China Merchants-led venture. These investments include larger bunker vessels designed to meet the fuel requirements of the expanding LNG-powered container fleet.

2- The Impact of the Middle East conflict

The Middle East conflict has increased supply uncertainty for marine LNG, affecting both fuel consumption by LNG carriers and the availability and cost of bunker supply. Disrupted Gulf exports increase competition for replacement LNG cargoes and expose bunker suppliers to higher procurement costs and less predictable delivery schedules. For bunkering operators, these conditions strengthen the rationale for diversified supply contracts, access to storage and procurement from sources outside the Gulf. Nevertheless, higher LNG prices do not automatically weaken its competitiveness against conventional marine fuels, because the conflict also disrupts oil supplies. According to a May 2026 analysis discussed by the Baltic Exchange, indicative unsubsidised marine fuel costs under a Strait of Hormuz closure scenario are substantially higher than under an open-Hormuz scenario. Measured in US dollars per deadweight tonne per 1,000 kilometres sailed, marine gasoil costs increase by 97%, from \$0.38 to \$0.75, while very low sulphur fuel oil costs rise by 103%, from \$0.30 to \$0.61. LNG costs increase more moderately, by 64%, from \$0.25 to \$0.41, making LNG the most cost-competitive of these fuels in the closure scenario. Consequently, fuel choice depends on relative delivered prices: dual-fuel vessels can retain LNG where it remains economical or switch to oil-based fuels when gas becomes more expensive or unavailable.

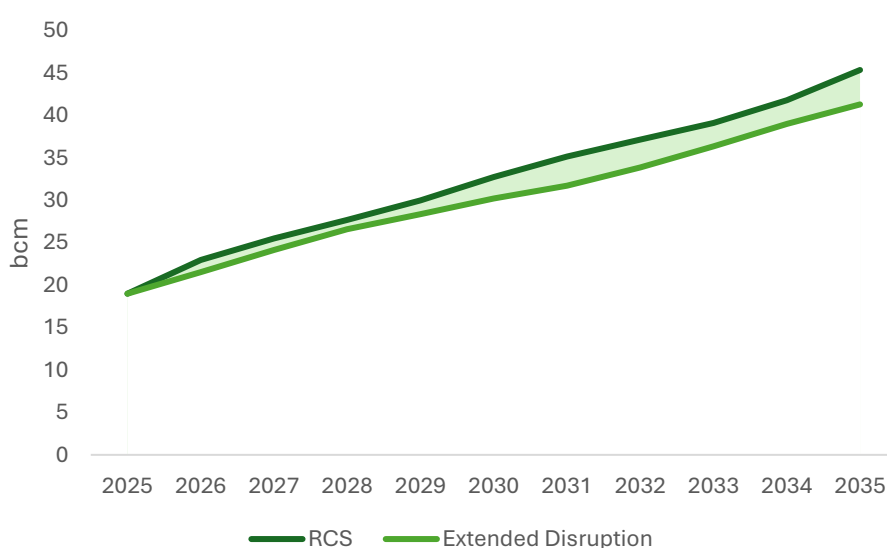
3- Outlook to 2035

Figure 2 presents the outlook for LNG demand in marine transport, distinguishing between fuel consumption by LNG carriers and bunkering demand from other LNG-fuelled vessels. The Reference Case Scenario (RCS) assumes that the global LNG-capable fleet, excluding LNG carriers, continues to expand along its recent exponential growth trajectory, supported by new energy policies and the cost competitiveness of natural gas relative to oil-based fuels. Under

this scenario, the fleet is projected to reach approximately 3,100 vessels by 2035, equivalent to 3.7 times its 2025 size. Global LNG trade is also projected to reach approximately 710 mtpa by 2035, supporting higher fuel consumption by LNG carriers. Together, these developments underpin an increase in total marine LNG demand from 19 bcm in 2025 to 45 bcm by 2035, more than doubling over the period. Bunkering represents the principal source of incremental demand, rising from 6 bcm in 2025 to about 22 bcm by 2035 and accounting for nearly two-thirds of the overall increase. Its share of total marine LNG consumption consequently expands from around 32% to approximately 50%, broadly matching that of LNG carriers. Meanwhile, LNG consumption by carriers increases from 13 bcm to nearly 23 bcm, supported by the assumed expansion of global LNG trade.

This shift changes the nature of marine LNG demand, not just its scale. Fuel consumed by LNG carriers is largely captive: it is tied to trade volumes and boil-off gas and is relatively insensitive to price. Bunkering demand, by contrast, is contestable, because most LNG-fuelled vessels are dual-fuel and choose between LNG and oil-based fuels on relative delivered prices. By 2035, around half of marine LNG demand will therefore be price-responsive, making shipping one of the first sizeable segments of LNG demand whose growth depends as much on price competitiveness and fuel availability at port as on fleet expansion.

Figure 2 LNG demand in marine transport, bcm



Source: GECF

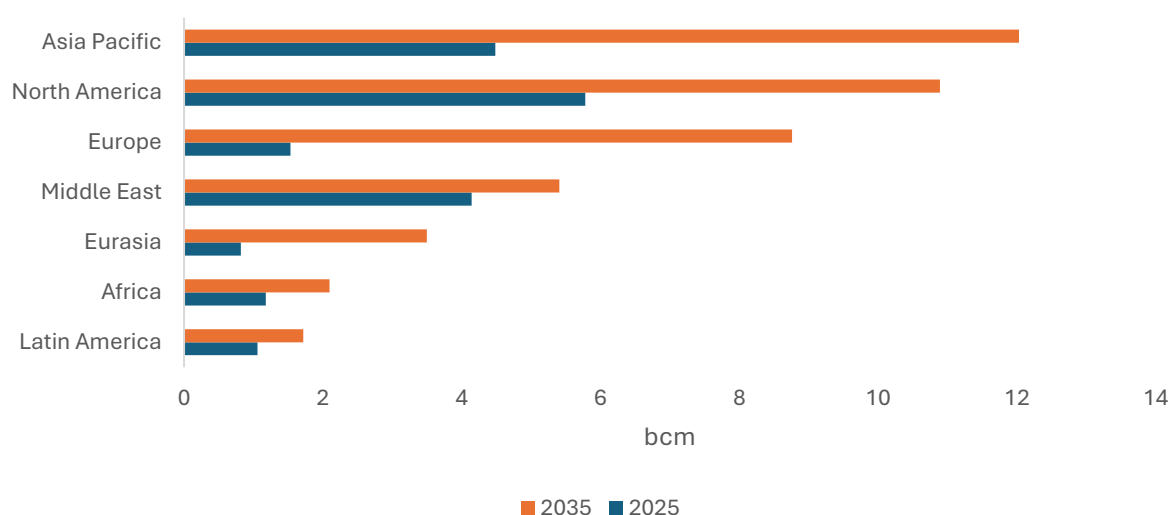
In the Extended Disruption scenario, LNG trade is assumed to expand more slowly following the Middle East conflict, reflecting weaker investment in supply capacity. By 2035, annual global LNG trade is projected to be approximately 50 Mtpa, or 7%, below the Reference Case Scenario (RCS). Persistent supply uncertainty and elevated gas prices are also assumed to constrain investment in bunkering infrastructure and LNG-fuelled vessels. Although LNG may

retain a cost advantage over oil-based marine fuels, slower global economic growth dampens trade expansion and associated fuel requirements. World trade volume growth is assumed to weaken, while the timing and pace of recovery remain highly uncertain. Under these assumptions, global seaborne trade volumes are projected to be 7% below the RCS by 2035. Together, weaker shipping activity and slower deployment of LNG-fuelled vessels limit marine LNG consumption, which is projected to reach approximately 20.5 bcm by 2035, around 7% below the RCS.

4- Regional outlook

The regional distribution of LNG demand in marine transport is expected to change significantly by 2035. Although Europe accounts for a small share of global LNG exports, regulatory drivers such as FuelEU Maritime and the EU ETS, together with support for bunkering infrastructure, are expected to expand its role as a marine LNG consumer. Consequently, Europe's demand is expected to increase a roughly sixfold to nearly 9 bcm compared to 1.5 bcm in 2025, while share of global marine LNG demand is projected to rise from 8% in 2025 to nearly 20% by 2035. In Asia Pacific, measures promoting LNG bunkering are expected to support an increase in demand from 4.5 bcm to 12 bcm, making it the largest consuming region. Meanwhile, North America's marine LNG demand is projected to nearly double, from 6 bcm to 11 bcm by 2035, driven primarily by expanding LNG exports and the associated increase in fuel consumption by LNG carriers. Similarly, in the Middle East and Eurasia, growth in marine LNG demand is driven primarily by expanding LNG trade, while dedicated LNG bunkering projects remain limited.

Figure 3 LNG demand in marine transport by region in the RCS, bcm



Source: GECF

The rapid expansion of the LNG-fuelled fleet is increasing pressure on bunkering infrastructure, whose development is struggling to keep pace with prospective fuel demand. In September 2026, DNV warned that the global LNG bunker vessel fleet might need to grow two-and-a-half to three-fold by 2030, with an estimated 165–208 vessels required to support the expanding market. This highlights the importance of matching investment in LNG-fuelled vessels with sufficient fuel-delivery capacity.

Investment is nevertheless advancing, but not fast enough. Even if all 42 vessels currently on order are delivered, the fleet would reach around 109 vessels, leaving a shortfall of roughly 55–100 vessels against DNV's estimated 2030 requirement. However, this expansion does not necessarily ensure adequate bunkering availability across all shipping routes, as geographical imbalances in provision and limited capacity at suitable shipyards continue to constrain development.

Conclusion

LNG demand in marine transport continues to increase, transforming the sector from a niche gas consumer into a rapidly growing source of demand. In the RCS, marine LNG consumption is projected to reach 44 bcm by 2035. Even in the Extended Disruption scenario, demand is expected to reach around 41 bcm, only 7% below the RCS, underscoring the resilience of marine LNG demand to supply shocks. However, the current pace of investment in bunker vessels, storage capacity, dedicated berths and supporting infrastructure risks constraining this growth, as the LNG dual-fuel fleet expands faster than the infrastructure required to serve it. LNG-fuelled vessels currently offer the most scalable near-term pathway to reduce maritime emissions, provided methane slip is minimised. The same engines, fuel tanks and bunkering infrastructure can also use bio-LNG and synthetic methane, reducing the risk of stranded assets as regulation tightens. Accelerated investment throughout the bunkering value chain is therefore essential to accommodate projected demand and support the sector's emissions-reduction objectives.

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