

25 Years of Collaboration and Innovation in LNG Shipping: From First-Generation to State-of-the-Art Technologies, Including the World's Largest LNG Carriers

Lead author: Adnan Ezzarhouni, General Manager, GTT China

Co-author: Wei Song, Chief Technical Officer, Hudong Zhonghua

Over the past 25 years, GTT and Hudong-Zhonghua Shipyard have closely collaborated to develop and innovate in the field of liquefied natural gas (LNG) carriers. This partnership has seen the evolution from the first generations of LNG carriers to the latest technologies, including the world's largest LNG carriers with a capacity of 271,000 m³. These ships, which will be delivered starting from 2028, represent a revolutionary advancement in the LNG shipping industry, setting new benchmarks for capacity, efficiency, and sustainability.

This paper provides an in-depth analysis of the evolution of LNG carriers over the past 25 years, highlighting the technological advancements and innovations that have marked each generation of ships. We will examine how state-of-the-art technologies, such as GTT's membrane containment systems, have improved thermal insulation, reduced LNG evaporation rates, and optimized operational performance. We will also explore advancements in hull design, gas propulsion, and CO₂ emission reductions, which have contributed to making LNG carriers more efficient and environmentally friendly. Furthermore, we will discuss recent developments in the field of LNG bunkering and FSRU, including the smaller 18,000 m³ ships and the mid-size 80,000 m³ shallow-draft vessels, as well as the LNG FSRU. These ships play a crucial role in expanding LNG infrastructure and providing bunkering solutions for commercial shipping.

Finally, we will look ahead to the next generations of LNG carriers, considering what they might look like and which emerging technologies could be integrated to continue pushing the boundaries of efficiency and sustainability. We will examine current trends and future projections, focusing on innovations that could shape the future of LNG shipping.

This paper aims to provide a comprehensive overview of design innovations, technological advancements, and operational benefits of LNG carriers. By highlighting the collaborative efforts between GTT and Hudong-Zhonghua Shipyard, we will demonstrate how LNG carriers continue to evolve and redefine the future of LNG shipping.

To view the **full technical programme**, visit <https://lng2026.com/technical-programme>

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