

Frequently Asked Questions About Safe Shipping

Why is LNG transported on ships?

LNG (liquefied natural gas) provides flexibility in accessing natural gas reserves that may be geographically remote from markets and consumers. LNG requires 600 times less space while kept at -160°C and near atmospheric pressure compared to an equivalent volume of natural gas in its gaseous state, making it much more cost effective to transport in ships (LNG carriers) over long distances by sea.

How safe is transporting LNG by sea?

LNG has been transported by seas since the 1950s, and there have been no serious incidents in all that time. This is testament to the LNG industry's rigorous design guidelines for both LNG carriers and shore facilities, as well as high standards of training and operations.

LNG carriers are inspected regularly to ensure they comply with strict safety standards. Ships are not permitted to operate without these regular inspections.

What does LNG Canada do to ensure safe ocean shipping?

Every LNG carrier visiting the LNG Canada terminal in Kitimat will be positively vetted in accordance with our Vessel Quality Assurance (VQA)_criteria. LNG carrier vetting and Ship Inspection Report Program (SIRE) are mandatory requirements under our (VQA) process.

LNG carriers must comply with a range of international and national regulations to ensure safety and environmental protection.

Key certifications and requirements:

- International Gas Carrier (IGC) Code 1986: This is a standard set by the International Maritime Organization (IMO) that LNG carriers must adhere to. It covers the construction and operation of carriers carrying liquefied gases in bulk.
- International Convention for the Safety of Life at Sea (SOLAS): LNG carriers must comply with SOLAS, specifically Chapter VII Part C, which pertains to the construction and equipment of carriers carrying liquefied gases.

These certifications ensure that LNG carriers are designed, constructed and operated according to the highest safety standards. Compliance with these regulations is essential for the safe transportation of LNG by sea.

For navigation safety, at a pre-arranged point west of Triple Island, two to three certified BC Coast Pilots with extensive knowledge of the local waterways will board each LNG carrier and provide local area navigational expertise. In addition, a powerful and purpose-built tugboat will meet the LNG carrier and provide an escort, staying close to the LNG carrier, all the way to the terminal. This process will be repeated in reverse when carriers depart the LNG Canada facility with LNG cargoes.

How many tugboats will be available to support the LNG Carriers?

HaiSea Marine, a Haisla Nation-Seaspan joint venture, will provide dedicated escort and harbour towage services for LNG carriers loading at LNG Canada terminal. Two LNG-powered escort tugs and three electric-hybrid tugs will be available to support the LNG carriers. One escort tug will travel with every LNG carrier in transit along the marine route from/to Triple Island to Kitimat. Three harbour tugs will support LNG carriers for berthing maneuver at the terminal.

All tugs are designed and fitted to respond to Marine Emergencies, which includes firefighting, marine spill response and rescue operations.



HaiSea Marine's all-electric and low emissions tugboats will provide harbour and escort and services for LNG Canada.

What marine emission regulations must LNG carriers follow?

LNG carriers are designed to minimize environmental impacts, particularly in terms of air pollution and greenhouse gas emissions. They must comply with International Maritime Organization (IMO) Regulations, which are adopted under Canada Shipping Act, 2001: MARPOL Annex VI: which regulates air pollution from ships, including LNG carriers. It sets limits on sulfur oxide (SOx) and nitrogen oxide (NOx) emissions and prohibits deliberate emissions of ozone-depleting substances.

What size of LNG carriers are expected at LNG Canada's terminal?

LNG carriers expected at LNG Canada's terminal will on average have a cargo capacity of 170,000 m³ – the equivalent volume of water held by 68 Olympic-sized swimming pools. A typical LNG carrier at the LNG Canada terminal is roughly 290 meters long with a draught of less than 12.5 meters when fully loaded.

How long will it take to load a carrier at the LNG Canada terminal?

The time it will take to load an LNG carrier will vary depending on factors such as the size of the ship, the volume of LNG being loaded, and the specific loading procedures at the terminal. Once the loading pumps are started, it typically takes about 12-15 hours to complete the loading process. With time added for loading preparations, the overall port stay is approximately 24 hours.

How many ships will load at LNG Canada terminal in a year?

In our initial Phase 1 (two LNG processing units, or trains) operations, approximately 170 LNG vessel arrivals are expected at the LNG Canada terminal every year, or one ship every two days. A Phase 2 expansion to four trains would see approximately 350 LNG vessel arrivals at the port, or one ship arriving and one ship departing every day.



Moss type LNG carrier Gemmata, pictured here at anchor.



HaiSea Marine – A Haisla Nation-Seaspan joint venture tug fleet for LNG Canada operations.