

Fact Sheet



Shipping

- Liquefied natural gas ships hold one of the shipping industry's best safety records
- Queensland Curtis LNG shipping will have minimal, if any, impact on Gladstone Harbour traffic
- There has never been a major loss of cargo by a liquefied natural gas ship

The Queensland Curtis LNG Project involves exporting liquefied natural gas, or LNG, from a plant on Curtis Island, near Gladstone, in specially designed ships.

Liquefied natural gas ships hold one of the best safety records in the shipping industry, having completed more than 80,000 voyages without a major accident or significant loss of cargo.

The ships will share Gladstone Harbour with existing marine traffic including bulk coal carriers, LPG ships and recreational craft.

This fact sheet explains how liquefied natural gas shipping will operate and outlines the measures and procedures that ensure continuing and safe access to the harbour for all users.

The project

Queensland Curtis LNG is a priority project of QGC, BG Group's Australian business. It represents a major investment in Queensland's coal seam gas industry to unlock new supplies of cleaner energy for domestic and export markets.

The project involves expanding coal seam gas production in the Surat Basin in southern Queensland and a 380km buried gas pipeline from near Miles to Gladstone where the coal seam gas will become liquefied natural gas at a plant on Curtis Island.

A key part of the project includes developing a dedicated liquefied natural gas shipping channel inside Gladstone Harbour to Curtis Island.

The project continued

The project is seeking approval for up to 12 million tonnes of liquefied natural gas a year with first gas production due in late 2013.

At maximum production, Gladstone can expect about two to three liquefied natural gas ships a week.

In its initial stage, the project will comprise two processing units, or “trains”, which will produce 7.4 million tonnes of liquefied natural gas a year.

LNG ships

Specially designed ships can transport natural gas, in the form of liquefied natural gas, over long distances.

The liquefied natural gas is stored near atmospheric pressure on the ship at about -162°C in tanks that act as a giant thermos.

A typical liquefied natural gas ship is around 300m long, 45m wide and has a water draft of 12m.

The ships have a crew of about 30 and carry between 138,000m³ and 170,000m³ of gas, or enough energy to power every household in metropolitan Brisbane for about two-and-a-half weeks.

Every aspect of these ships is strictly regulated, from design and construction through to daily operations.

The ships are built with double hulls and primary and secondary liquefied natural gas containment systems.

Sophisticated safety systems include gas and low temperature monitoring, heat and fire detection, cargo-related emergency shutdowns and nitrogen and inert gas pumping.

Other standard safety features include global positioning equipment, global maritime distress systems and ship-to-shore communications.

These ships can operate on marine diesel or they can draw on gas from the cargo they carry.

QGC - A BG Group business

Queensland Curtis LNG is a priority project for QGC, BG Group’s Australian business.

BG Group is one of the world’s leading energy companies, with extensive experience in delivering natural gas to markets around the world.

The company’s involvement in liquefied natural gas shipping dates back to 1959 when a predecessor to BG Group, the British Gas Council, was involved in the inaugural trans-Atlantic shipment of liquefied natural gas.

Today, BG Group has operations in 27 countries, including major liquefaction plants in Egypt and Trinidad as well as regasification terminals either under construction or in operation on both sides of the Atlantic.

The company is one of the world’s largest independent operators of liquefied natural gas ships.

BG Group has a core fleet of nine ships and has the ability to charter additional vessels as required, which can increase the fleet size to more than 20.

Gladstone Harbour

The world-class, deep-water Port of Gladstone is Queensland’s largest multi-cargo port and the fifth-largest in Australia.

The port has a vital role in the state and national economies, handling imports and exports of raw and value-added materials from the central Queensland region and finished products from industries in Gladstone.

Major imports and exports include coal, bauxite, LPG, alumina, cement, sorghum and wheat.

Gladstone Harbour is also important for many others users including ferry services, charters and recreational fishing and sailing.



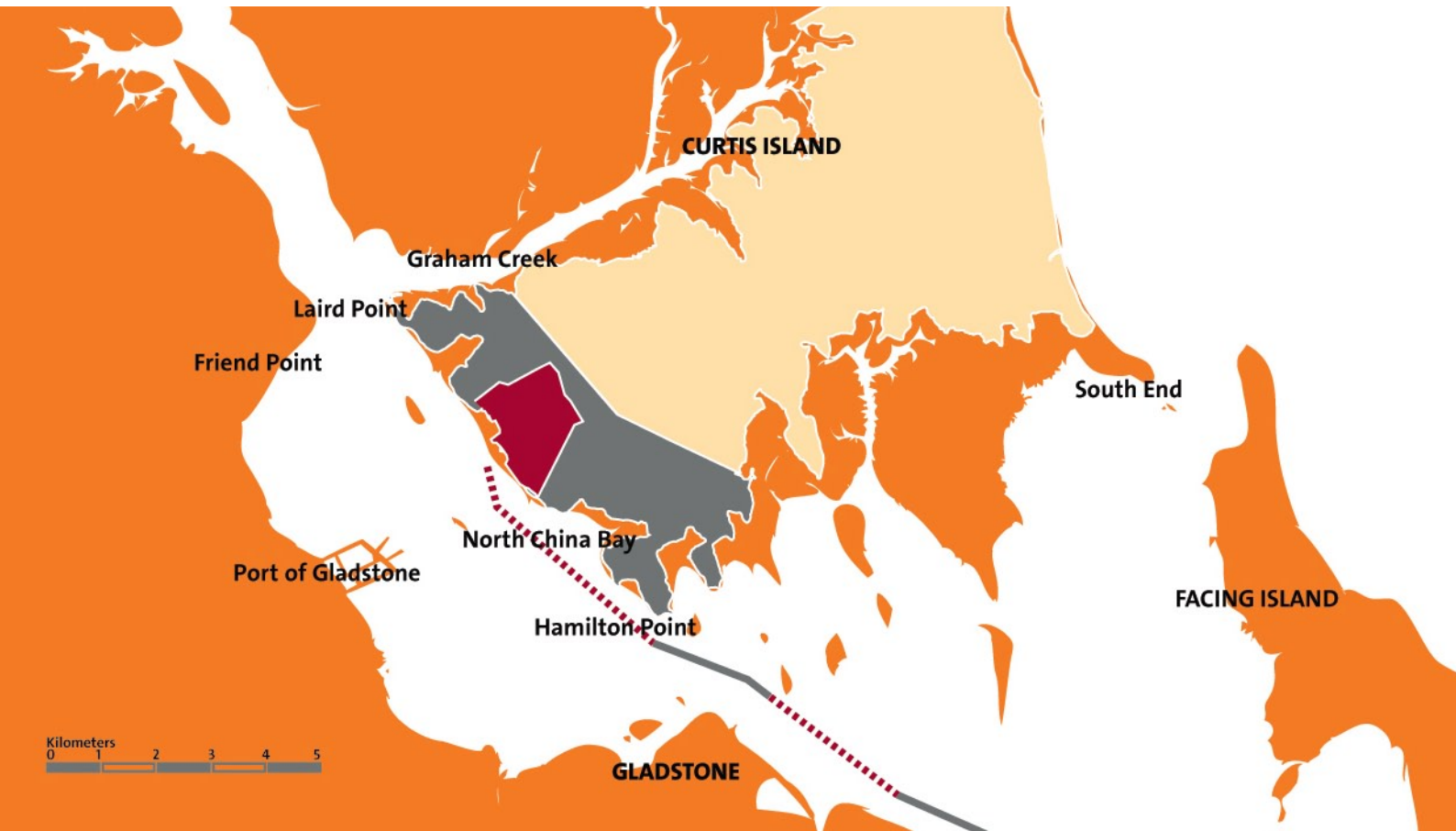
Traffic and impacts

Queensland Curtis LNG will work with the Gladstone Ports Corporation, which coordinates shipping within the harbour, to minimise any impact from liquefied natural gas shipping on other commercial and recreational vessels.

Traffic is directed by the Harbour Master, similar to the way air traffic control operates at airports.

When a ship arrives, it is joined by a qualified local, licensed pilot who assists the ship’s captain to navigate through the harbour.

To eliminate the risk of collision with other vessels and to prevent smaller craft from impeding a liquefied natural gas ship, moving safety zones are placed around the ships when they enter a harbour.



The ships are then escorted by tugs to ensure their course is clear of other vessels and that other harbour traffic complies with the moving safety zones.

These zones are based on the stopping distance of a typical liquefied natural gas ship travelling at 12 knots.

BG Group's policy is to observe moving safety zones set out by the Society of International Gas Tanker and Terminal Operators. These zones set minimum distances for ships entering and leaving port.

Safety zones ensure other craft maintain distances from liquefied natural gas ships of:

- About 1.5 nautical miles ahead of the vessel
- 0.5 nautical miles astern, or following, and
- 0.5 nautical miles on either side.

Fixed safety zones, maintained by tugs and marked by retractable buoys, are placed around liquefied natural gas vessels at berth to eliminate the presence of non-controlled sources of ignition in the unlikely event of a leak or spill.

The fixed safety zones will not impede the passage of recreational boat traffic, including between South Passage Island and the terminal jetty on Curtis Island.

In its first stage, Queensland Curtis LNG will load one to two ships a week at its Curtis Island terminal.

Loading a liquefied natural gas ship typically takes 20-24 hours.

Preliminary modeling suggests that liquefied natural gas ships, whether in transit or at berth for loading, will cause minimal, if any, disruption to existing users of Gladstone Harbour, including recreational vessels.

It is estimated that a liquefied natural gas ship travelling at 12 knots, with a moving safety zone, would delay the passage of other vessels in the harbour for a maximum of 10-15 minutes.

Also, Queensland Curtis LNG has the flexibility to schedule ship movements to avoid heavy traffic.

As part of its social and environment studies, Queensland Curtis LNG will assess traffic densities for Gladstone Harbour over the next decade and do detailed studies to help identify, manage and avoid impacts.

To date, the Australian Maritime College in Tasmania has replicated tidal, wind and weather patterns in Gladstone Harbour and is providing BG Group captains with valuable information about operating in the port.

Safety and security

Incidents involving LNG ships are rare.

Globally, LNG ships have completed 80,000 voyages, including more than 2,600 from Australia, without a major accident or loss of cargo.

The liquefied natural gas shipping industry's enviable reputation for safety, earned over almost 50 years of commercial operations, is the product of continuous improvement of technology, safety equipment, comprehensive safety procedures, training and equipment maintenance.

An average fully laden liquefied natural gas ship contains a similar amount of energy as the Cape Size bulk coal carriers that trade in and out of Gladstone Harbour.

But although liquefied natural gas vapours may burn when released to the atmosphere, they do not release energy quickly enough to create the overpressures, or force, associated with explosions.

Like on-shore liquefied natural gas facilities, the ships are operated according to strict procedures and designed with multiple layers of protection, including double hulls, secondary containment systems and emergency-related shutdown systems.

The gas transfer system between the ship and the storage tank is designed to prevent leaks and to safely contain them, in the unlikely event that they occur.

Alarms and monitoring systems ensure that all cargo-related safety systems are properly functioning.

While the hazards faced by liquefied natural gas ships are the same as those present throughout the shipping industry, accidental spillages are rare and no liquefied natural gas ship has ever suffered a major loss of cargo.



Contact

If you would like more information about the Queensland Curtis LNG Project and liquefied natural gas shipping, please contact us at: info@qclng.com.au or our toll-free number **1800 030 443**

Alternatively, visit our website: www.qclng.com.au

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