Santos GLNG

HELPING TO POWER THE WORLD WITH AUSTRALIAN LIQUEFIED NATURAL GAS

GLNG is a Santos PETRONAS TotalEnergies KOGAS venture.

Santos | PETRONAS | TotalEnergies | KOGAS KOREA GAS CORPORATION

Who we are

Santos GLNG is a joint venture between Santos and three of the world's leading energy companies—PETRONAS from Malaysia, TotalEnergies from France and KOGAS from South Korea.

The joint venture has involved gas fields development in the Surat and Bowen basins, construction of 420 kilometres of underground pipeline and the Gladstone Liquified Natural Gas (GLNG) Facility on Curtis Island off the coast of Gladstone, Central Queensland.

Construction of our two-train GLNG Facility, which has a combined nameplate capacity of 7.8 million tonnes of LNG per annum, started in 2011, with the first shipment of LNG leaving Curtis Island in October 2015.

As of early–2024 our facility has safely produced and shipped over 750 cargoes of LNG and is on-track to reach the significant milestone of 1,000 cargoes in 2026.

We're proud of our highly-skilled team of nearly 125 workers, 94 per cent of which live locally in the Gladstone Region.

We're proud of our commitment to always be safe, and in October 2023 we reached six years Lost Time Injury Free.

We're proud to be a responsible corporate citizen and of our contribution of over $787 million in royalties to the Queensland Government since 2011.

Today, natural gas allows billions of people to enjoy access to lower carbon heat and power, and as the world works towards net zero emissions, we think natural gas will play an important role in getting us all there.

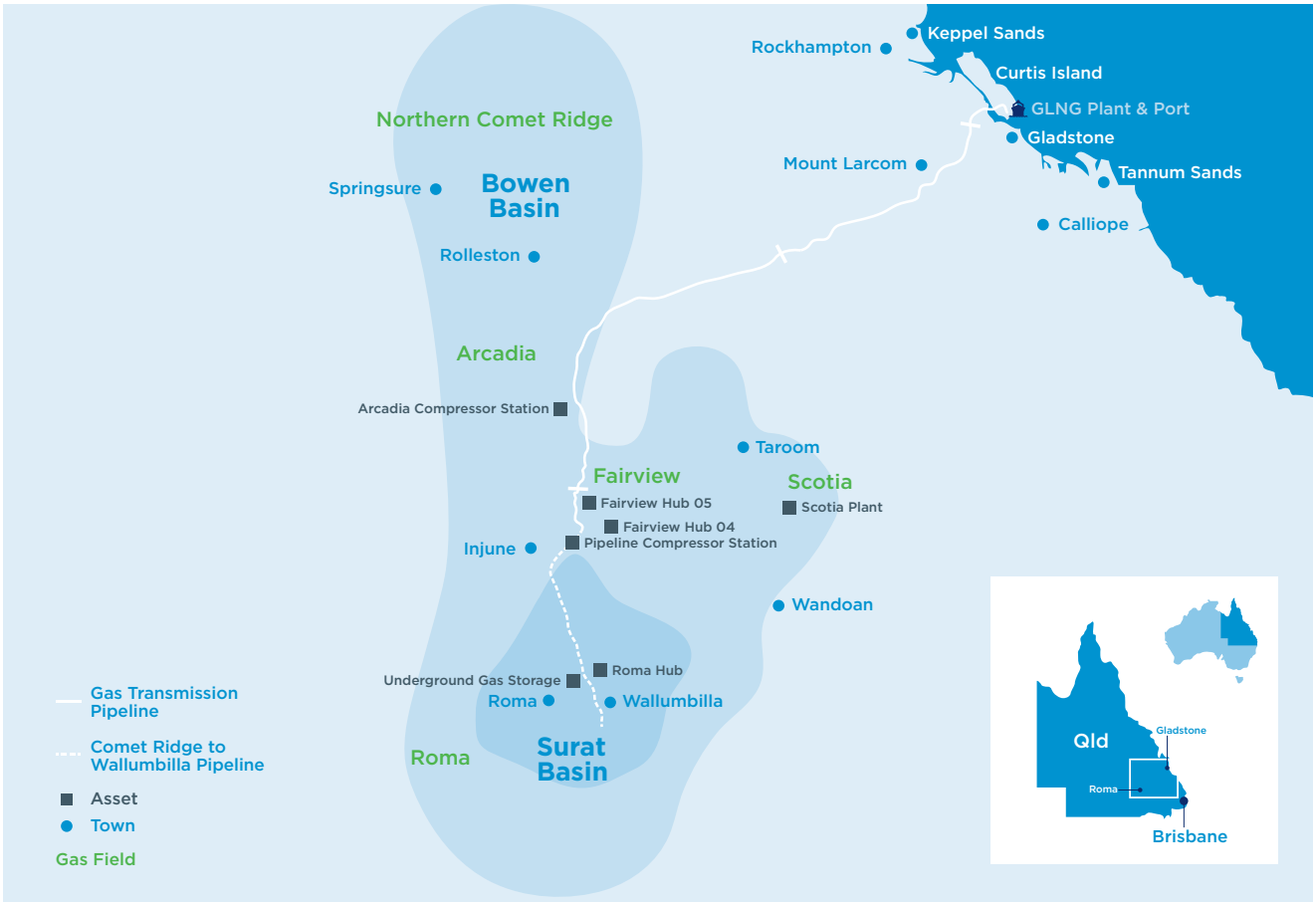
What is LNG?

Natural gas is formed when accumulations of organic matter are buried and exposed to increasing heat and pressure over time.

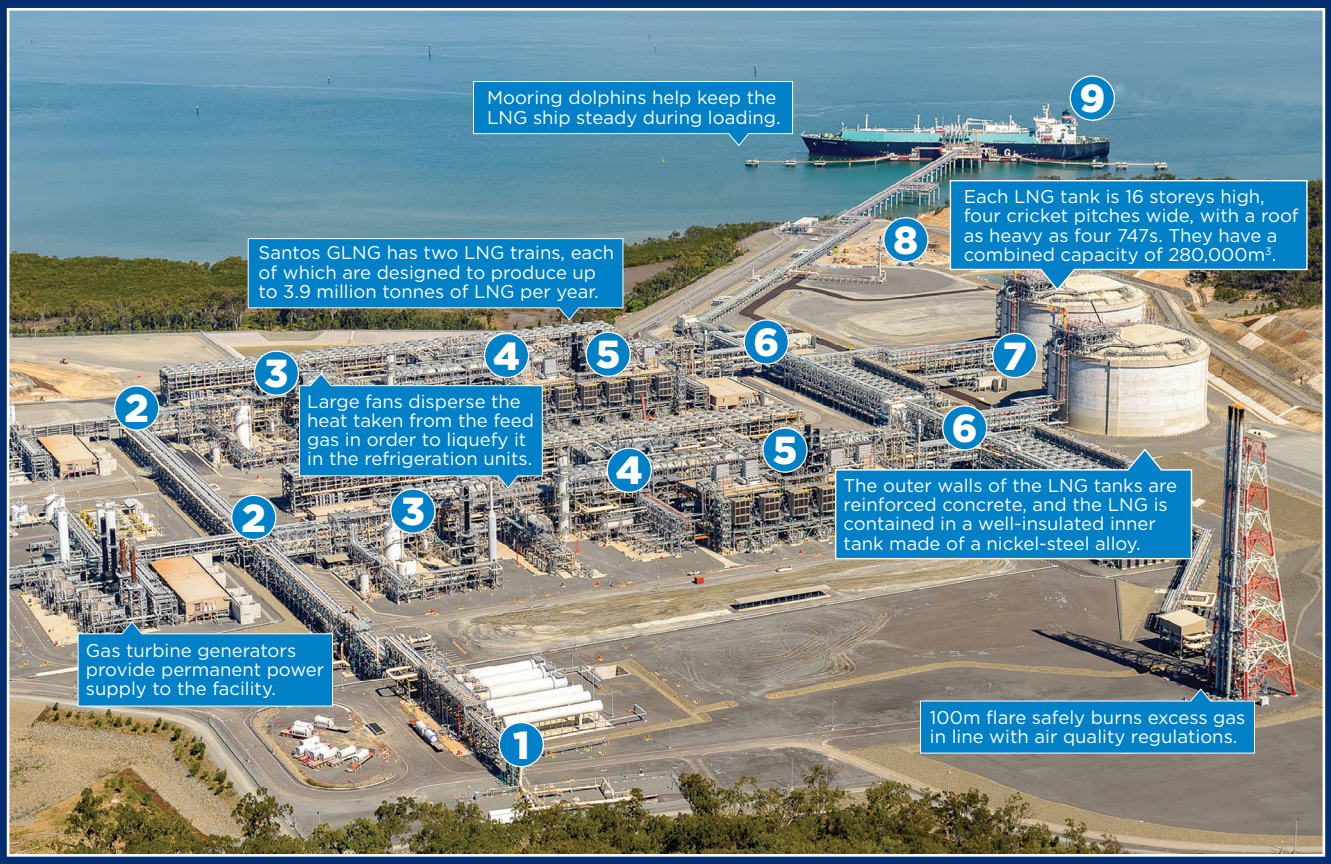
Liquified Natural Gas (LNG) is natural gas (almost pure methane) that has been purified and cooled down to a liquid form at -161°C to safely store and transport. LNG is clear, odourless, non-toxic, non-corrosive and will not ignite; it is also 1/600th the volume of natural gas in its gaseous state.

For more than 50 years, LNG has been safely produced and transported across the world in increasing quantities. It is shipped in double-hulled tankers, that are designed and constructed to enable the LNG to stay cold without the need for pressurisation.

Much of our LNG is shipped to our JV partners in South Korea and Malaysia. When it reaches its destination, it is turned back into a gas at regasification plants. It is then piped to homes, businesses, and industries where it is used for heat or to generate electricity.



How we make LNG at our GLNG Facility



1. Natural gas (almost pure methane) enters the facility via a 420km pipeline from the Surat and Bowen basins.
2. The gas is fed into one of two LNG processing trains.
3. Small amounts of carbon dioxide and water are removed from the gas.
4. The gas is then progressively cooled in three stages. First a propane refrigerant is used to cool the gas to -30°C, then an ethylene refrigerant is used to cool the gas to -90°C. Finally, the gas is cooled using changes in pressure to -161°C, at which point it becomes LNG.
5. Six large gas turbine-driven compressors circulate the refrigerant gases.
6. The LNG is then pumped into storage tanks, where it is kept at atmospheric pressure.
7. The small amounts of LNG that boil off in the tanks are returned to the process to be reliquefied.
8. LNG is pumped through pipes along a 400m jetty to the loading berth.
9. Four loading arms are used to load LNG onto specifically designed ships, which carry approximately 140,000m³ of LNG.

About flaring

Flaring is part of the safe operation of our GLNG Facility and complies with all air quality regulations.

It ensures hydrocarbons, that cannot be used in the liquefaction process, are safely combusted, and not directly emitted to the atmosphere.

Santos GLNG has approval from the Queensland Government's Department of Environment and Science to conduct safety flaring to ensure that people, property, and the environment are protected.

During normal operations a small flame, commonly called a pilot flame, will burn continuously from our main flare stack.

To prepare our GLNG Facility for safe maintenance works, or a shutdown, the plant needs to be cleared of all gases to ensure the safety of workers and the equipment. All the gases held within the plant, that cannot be recovered or reused, are then sent to the safety flare.

During this process the flare may change in size or colour—this is normal and no cause for concern.

Community investment

Santos GLNG invests in the well-being of our community by supporting organisations dedicated to making a positive impact in the Gladstone Region.

Every year we invest in our community by supporting projects, programs and events that result in community growth and enrichment, positive health outcomes, skills development across STEM disciplines, environmental awareness and preservation and Indigenous engagement, with a focus on sustainability, and capacity and capability building.

The Mount Larcom Show

With over 11,000 visitors, participants and exhibitors taking part every year, the annual Mount Larcom Show is well-recognised as Central Queensland's not-to-be missed family-friendly agricultural show.

In addition to our organisation being the long-time principal sponsor of the show's Woodchop + Chainsaw Events, Santos GLNG employees run the Woodchop + Chainsaw BBQ every year, which raised over $7,000 for the show society in 2023.

Santos GLNG Mayor's Charity Ball

We have been the naming right sponsor of the hugely popular biennial Santos GLNG Mayor's Charity Ball since 2018, which fundraises for Gladstone Region not-for-profits.

In 2023, the ball raised an impressive $123,000 for Gladstone Animal Rescue Group, Zonta Gladstone and Quoin Island Turtle Rehabilitation Centre.

We're proud to continue our association with Gladstone Regional Council for this event and have committed to sponsoring the 2025 and 2027 balls.

The Gladstone Eisteddfod

Santos GLNG has been the principal sponsor of the annual Gladstone Eisteddfod, a performing arts competition across the disciplines of instrumental, vocal, speech and drama and dance, since 2009.

We're proud to be able to support the Gladstone Eisteddfod volunteer committee in delivering an opportunity for the creatives in our community to showcase their talents on stage at the Gladstone Entertainment Convention Centre—the region's premier performance venue.

Natural gas in a low carbon world

Natural gas, when burned or used for electricity generation, releases up to 50 per cent less carbon dioxide than coal.

As electricity production increasingly switches to renewable sources, gas is a flexible partner to wind and solar, providing quick and reliable backup power, whatever the weather.

This gas and renewables partnership has helped the United Kingdom to lower emissions to levels last seen in the 19th century.*

While between 2005 and 2019, CO_2 emissions from generating electricity in the United States of America, fell by 32 per cent, largely due to the shift from coal to natural gas power stations.^

When natural gas is burned for power generation or for heat, the carbon dioxide generated can be captured, through carbon capture and storage (CCS) technologies, so that it doesn't reach the environment.

Each year Santos' Moomba CCS Project is expected to capture 1.7 million tonnes of CO_2, already separated from natural gas at the Moomba Gas Plant in South Australia.

CSS Technology also provides an opportunity to launch further projects to store other sources of CO_2, such as from direct air capture, and it enables low-carbon hydrogen production.

Moving and storing gaseous hydrogen is a challenge though; because of its low density it takes a lot of energy to move hydrogen through a pipe, compared with a denser gas such as methane, and it can embrittle steel pipelines unless that is mitigated by altering operating conditions or incorporating expensive alloys.

One way to integrate hydrogen into the energy mix is to blend it with methane in existing natural gas pipelines, decarbonising some of the system.

Experiments in the United Kingdom and France have shown that a mixture of 80 per cent methane and 20 per cent hydrogen can be efficiently moved in a natural gas pipeline, without any new equipment needed.~

Natural gas will play a key role in the long transition to a low carbon future, with the International Energy Agency (IEA) suggesting that natural gas production may need to grow to account for a quarter of energy demand by 2040.*

*International Energy Agency Report "*Role of Gas in Today's Energy Transitions*"
^U.S. Energy Information Administration Report "*Power Plant Operations Report*"
~Scientific American Magazine Vol. 324 No 4. (April 2021) "*What to do about Natural Gas*"