

What Is Liquefied Natural Gas (LNG)?

Liquefied natural gas – commonly referred to as LNG – is natural gas cooled to a temperature of about -260 degrees Fahrenheit at which it condenses into a liquid form. Liquefying natural gas reduces its volume by 1/600th (in other words, 600 cubic feet of natural gas is reduced to 1 cubic foot of LNG, making it more practical to store and transport). LNG is stored cold in insulated containers at near atmospheric pressure.

In New England, nearly 50% of our electric generation supply comes from cleaner-burning, natural gas-fueled power plants. During the coldest winter days, as much as 40% of New England’s natural gas supply comes from LNG. Liquefying natural gas makes it easier to transport and for long-term storage so it can be vaporized and made available to create electricity for customers during peak demand periods, when the supply of natural gas might otherwise be limited or unavailable.

LNG is widely recognized as an environmentally friendly fuel source. Unlike some other fossil fuels, natural gas is non-carcinogenic and non-toxic. When liquefied, impurities such as sulfur, carbon dioxide, mercury and water are removed from natural gas and safely disposed of. This creates a product that, when re-vaporized and transported to customers, is clean burning and safe for the environment. Compared to the average air emissions from coal-fired generation, natural gas produces half as much carbon dioxide, less than a third as much nitrogen oxides, and one percent as much sulfur oxides at the power plant.

The LNG industry’s highest priority has been safety and security, which is reflected in the industry’s enviable safety record. LNG tanks are designed and built using double-walls, with extremely efficient insulation between the walls. The inner tank is made using a special nickel steel alloy can resist the cold temperatures associated with direct exposure to LNG. The outer tank will be a thick-walled, steel lined, pre-stressed steel reinforced concrete tank designed to contain the LNG in the extremely unlikely event of a leak in the inner tank. The tanks are built to withstand high winds, floods and earthquakes.

In addition, there are numerous layers of safety and security systems in place to prevent spills or releases. There are monitoring systems in place to quickly detect a leak and trigger the safety systems. Storage tanks are built with multiple layers of containment. LNG is not stored under pressure and is not explosive, toxic, or carcinogenic. In the event of a release of LNG from the inner storage tank, that leak will be contained by the outer tank, LNG will vaporize, meaning that the liquid will warm up and change back into gas. This gas would quickly dissipate as it warms up and becomes lighter than air, leaving no environmental trace.

