DEVELOPING A CLEAN ENERGY SOURCE FOR THE NEXT GENERATION

Mozambique LNG is emerging as a leader in the global LNG industry, with 75+ trillion cubic feet (Tcf) of estimated recoverable natural gas discovered to date in Mozambique’s Offshore Area 1. The project sponsors have the expertise, skill and knowledge to safely deliver one of the world’s most significant LNG projects.
**LNG PRODUCTION**

The Mozambique LNG facilities will receive natural gas from offshore wells via subsea pipelines. The natural gas will then be treated and conditioned to remove impurities, water and any associated condensate. The treated gas stream is then routed to a liquefaction train where it will undergo multiple stages of refrigeration to reach temperatures of approximately -160°C. The liquefaction process converts the natural gas to liquid form for ease of storage and transportation.

Adherence to industry standards and Best Management Practices (BMPs) are integral for safe LNG production and include, but are not limited to, continuous training of personnel in process operations, safety procedures, equipment inspections and security.

Security is an essential part of any business endeavor. For LNG facilities, site security is a high priority and includes controlled access, continuous monitoring, and dedicated and highly trained security personnel.

**LNG STORAGE**

LNG is stored in specially designed, sealed, non-pressurized tanks at -160°C. All tanks will be of full-containment design based on industry specification standards. Full-containment tanks typically feature a primary liquid containment, open-top inner tank and a pre-stressed concrete outer tank.

The primary tank is constructed of 9% nickel steel, which provides excellent strength and toughness at cryogenic temperatures.

The outer concrete tank shell provides primary vapor containment and secondary liquid containment. As a back-up source of containment, the outer tank will contain the liquid and also provide for a safe, controlled release of the vapor, if necessary.

Storage facilities are equipped with advanced safety systems to monitor pressures and provide early detection of potential issues and rapidly activate emergency shutdown if warranted.

**SAFE, SECURE AND RELIABLE ENERGY**

The LNG industry is continuously working to build upon its excellent record of safety performance and enhance the security of LNG production, storage and transport.

Advancing technology, innovative equipment designs and improved processes provide multiple layers of protection, such as:

- Primary containment
- Secondary containment
- Comprehensive personnel training
- Safeguard systems
- Separation distances (safety and security zones)

These elements, when integrated with industry standards, regulatory compliance and BMPs, form the foundation of a strong safety and security performance for which the LNG industry has become known.

LNG is a safer, cleaner, more reliable and more secure form of energy. Its unique characteristics make it a great option for consumers seeking cleaner alternatives, today. LNG is:

- Colorless, odorless, non-combustible and non-toxic
- Storable and transportable under atmospheric pressure conditions
- Non-combustible as a liquid
- Buoyant and evaporative
- Benign to sea life
- Lighter than air in its vapor state, which increases dispersion
- Rarely flammable as a vapor (requires 5 - 15% natural gas in air)
- Required to be transported in double-hulled LNG ships

The LNG shipping industry is committed to safety, and its record of performance since the very first shipments of LNG in 1959 demonstrates the industry’s safety-first culture – more than 75,000 cargoes have been safely delivered over this time period.

Much of this safety performance and reliability can be attributed to strict standards for vessel design and construction along with state-of-the-art equipment. LNG is transported in specially designed, double-hulled vessels with insulated containment tanks to safely handle the cryogenic temperatures of the LNG.

There are two primary types of non-pressurized containment designs used on LNG ships – geometric membrane or Moss-type spherical. With a gap of at least two meters between the outer vessel hull and cargo containment tanks, the LNG cargo is well protected for long-distance transport to market.

Extra care is taken in designing, maintaining and operating LNG carriers to ensure safe handling and transport. Inherent in the vessel design are numerous safeguard systems, including gas, heat and fire detection and suppression systems. LNG carriers are maintained in class at all times and comply with all applicable international and regulatory standards. Carrier security is enhanced through full compliance with the International Ship and Port-Facility Security (ISPS) Code and established safety exclusion zones.

Operators of LNG production facilities are required to adhere to strict international standards that provide criteria for siting, layout, design, fabrication, construction and operations.

Personnel at LNG production facilities are highly trained and well-versed in contingency plans and emergency response. Comprehensive safety and emergency-response drills are conducted on a regular basis to evaluate and enhance response capabilities.