Mission Critical Solutions: LNG

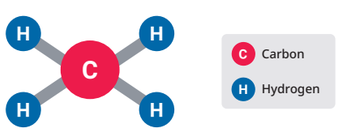
Raychem

Liquefied natural gas is essential in any company's energy transition as it plays an instrumental role in shifting away from coal and reducing carbon emissions.

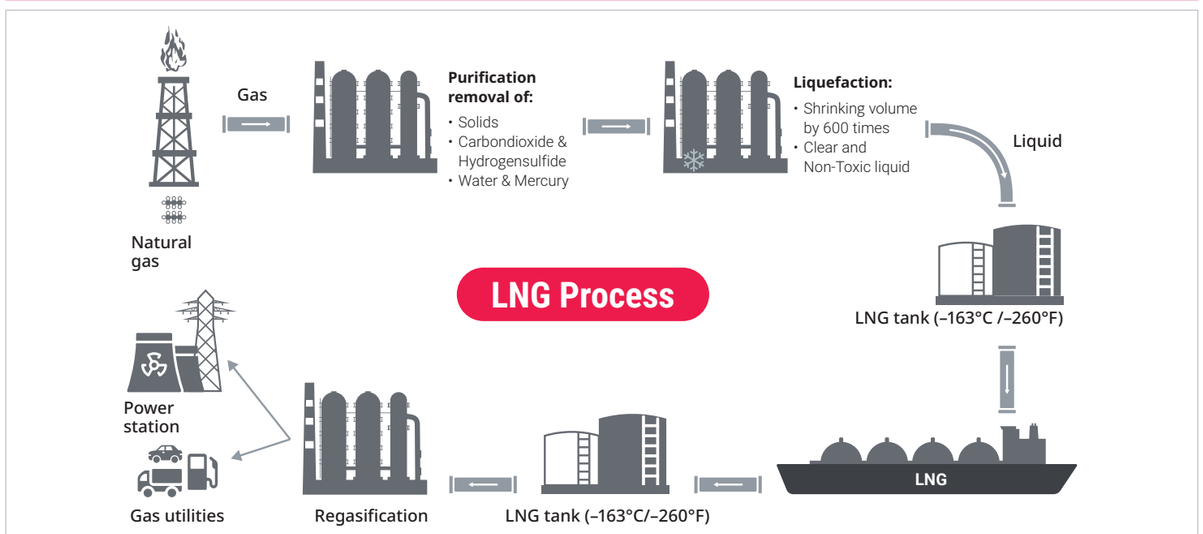
It produces 50% less CO2 than coal and oil, thereby offering a cleaner and more sustainable energy solution vital for tackling climate change.

WHAT IS LNG

- LNG is a natural gas cooled down to liquid form (at –163°C/–260°F) to reduce its volume by 1/600th. This allows for an economical, non-pressurized and safe storage and transportation
- The liquefaction process involves removal of certain components, such as dust, acid gases, helium, water, and heavy hydrocarbons, which could cause difficulty downstream.
- After (overseas) transport the LNG is regasified for final distribution (through pipes) and use.



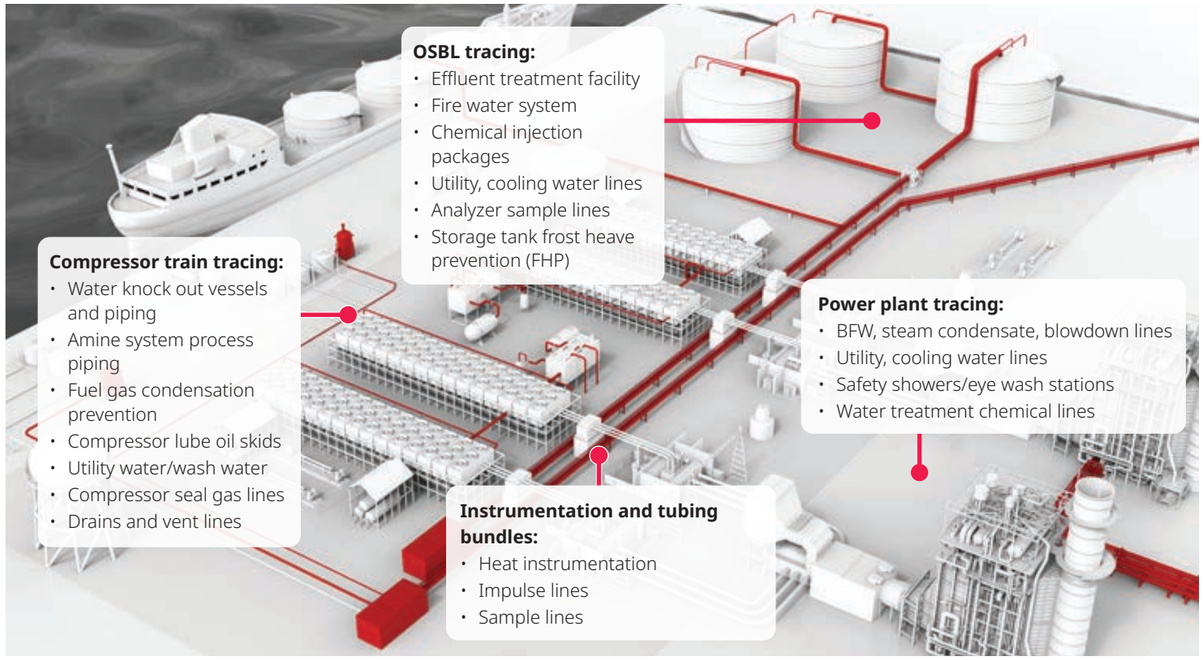
TYPICAL PRODUCTION PROCESS



TYPICAL PRODUCTION CHALLENGES AND HEAT TRACING SOLUTIONS

	Challenges	Solutions
	Pre-treatment: Removal of pollutants like dust, slug, hydrogen sulfide (H_2S) and mercury (Hg) to prevent downstream issues such as corrosion, clogging and freezing problems.	• Process temperature maintenance • Pipe freeze protection STS heating for long sulphur pipelines.
	Acid gas removal and dehydration: CO_2 is removed in the amine absorber, and an adsorbent removes water to prevent ice formation during liquefaction.	• Process temperature maintenance pipe freeze protection
	Hydrocarbon separation: Removing C5+ hydrocarbons by fractionation before liquefaction.	• Process temperature maintenance and long pipe heating
	Transport and storage: Ensuring efficiency of transport when navigating through cold waters and for safe storage.	• Frost heave protection for cryogenic tanks • Offshore and maritime winterization
	Regasification: Convert LNG back to natural gas.	• As the gas is clean, there is not much heat tracing needed. Mainly freeze protection of utilities, fire fighting systems and building winterization protection.
	Distribution: The gas is transported through a vast pipeline network at high pressure, with compressor stations at regular intervals.	• Pipe freeze protection on water condensate lines and instrumentation

TYPICAL HEAT TRACING APPLICATIONS



WHY CHOOSE RAYCHEM

Highest quality products	Expertise optimal system design & installation	Reliable performance & lower cost of ownership
• The **inventor** of self-regulating heating technology and High Power Retention (HPR) Technology • Up to +30 year design life • 10-year product warranty • Since 1972	• 200+ expert designers • 6000+ installers • 600,000+ optimized EHT circuits with 3D integrated design & project management software TRACERLYNX	• 600,000 km installed (15x around the globe) in the most remote and harshest environments • Advance control & monitoring • Wide temperature ranges from –200°C to +1000°C

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CASE STUDIES

Enhancing operational reliability for a major LNG firm in Texas. Implementing frost heave prevention for storage tanks with capacity to store 160,000 cubic meters of LNG.

Location: Corpus Christi, Texas, USA
Completion date: 2019
Applications: LNG storage tanks - Frost heave prevention
Technology: Raychem Constant Wattage Cables (FHP-C), Raychem advanced control & monitoring
Contract scope: Engineering, Product Supply, Start Up Support

Efficient heat management for world's first gravity based structure (GBS), the adriatic LNG, located near the Italian coastline. Utilizing the skin-effect trace-heating with fiber optic sensing.

Location: Adriatic Sea, 15 km off the Italian Coast
Completion date: October 2009
Applications: LNG tank frost heave protection
Technology: Skin-Effect Trace-Heating System
Contract scope: Engineering and Product supply

Ensuring sulfur flow for a palletizer facility in Qatar with Raychem turnkey solutions team

Location: Ras Laffan, Qatar
Completion date: May 2009
Applications: 12" sulfur transfer pipeline (35 km length)
Technology: Skin-effect Tracing System (STS), Fiber-optic Distributed Temperature Sensing, FEA 3D Modeling
Contract scope: Design, Specification, Engineering, Procurement, Construction, Commissioning

Keeping large LNG plant operational in extreme remote, artic environment (–52°C/–62°F)

Location: Sabetta, Yamal peninsula
Completion date: 2017
Applications: Freeze protection, process temperature maintenance, long-line heating, foundation heating, and more
Technology: 1000's of circuits were traced with various Raychem cable technologies (SR, VPL, MI, STS), many field control panels and central monitoring systems.
Contract scope: Engineering, design, procurement, construction & commissioning support

More information: chemelex.com

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