

LNG Fundamentals and Value Chain Training Course

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Overview

LNG Fundamentals and Value Chain Training Course is a one-week foundation course for graduate engineers, commercial staff, junior operations and maintenance personnel, project teams, and supply-chain functions who leave with an LNG Value Chain Fundamentals Workbook. Participants connect LNG value chain fundamentals, feed gas treatment and liquefaction, cryogenic LNG storage, LNG shipping and marine interfaces, and LNG regasification and distribution with quality, custody transfer, hazards, barriers, projects, and markets. Agile Leaders Training Center presents liquefied natural gas fundamentals.

Who Should Attend

- Early-career engineering functions responsible for understanding LNG systems and process interfaces
- Operations and maintenance functions responsible for equipment awareness and operating boundaries
- Commercial functions responsible for connecting physical flows with contracts and markets
- Project and supply-chain functions responsible for packages, interfaces, logistics, and schedules
- Safety and support functions responsible for hazards, barriers, documentation, and coordination

The course assumes participants can read basic process and business information, and it leaves out detailed process design, operator qualification, trading models, project finance, marine navigation, and advanced terminal procedures.

Departments and Industries

The course supports departments and industries that develop, operate, supply, finance, or use LNG infrastructure.

- Natural gas processing, liquefaction, and export projects
- LNG shipping, ports, terminals, and marine services
- Receiving terminals, regasification, pipelines, and utilities
- Power generation, industrial gas use, and heavy transport
- Engineering contractors, equipment suppliers, logistics, and consulting

Learning Objectives

By the end of this course, participants will be able to:

- Build an end-to-end LNG value-chain map
- Compare LNG, CNG, and LPG properties and uses
- Analyze treatment, refrigeration, and liquefaction stages
- Use storage, boil-off, shipping, and transfer concepts
- Evaluate regasification, quality, hazards, and barriers
- Connect physical systems with project and market interfaces

Course Agenda

Day 1: Map the LNG Value Chain

- Natural Gas Composition and Product Comparison Sheet
- LNG, CNG, and LPG Property and Use Matrix
- Wellhead-to-Customer LNG Value-Chain Map
- Physical Flow, Title, and Custody Interface Diagram
- LNG Project Stakeholder and Decision Register

Day 2: Prepare and Liquefy Feed Gas

- Feed Gas Contaminant and Pretreatment Checklist
- Acid Gas, Water, Mercury, and Heavy-Component Removal Map
- Refrigeration Cycle Concept Comparison
- Liquefaction Train and Refrigerant Compression Flow Sheet
- Energy Use, Product Quality, and Operating-Limit Register

Day 3: Store, Load, and Ship LNG

- Cryogenic Storage Tank and Containment-System Map
- Boil-Off Gas Generation and Handling Balance
- Loading Arm, Jetty, and Ship-Shore Interface Diagram
- LNG Carrier Cargo System and Voyage Flow Map
- Custody Transfer Quantity and Quality Record

Day 4: Receive and Regasify LNG

- Unloading, Storage, and Send-Out Process Map
- Regasification Technology Concept Comparison
- Terminal Inventory and Boil-Off Control Sheet
- Gas Quality, Metering, and Pipeline Delivery Register
- Cryogenic Hazard, Barrier, and Emergency-Response Map

Day 5: Practice LNG Chain Decisions

- Suggested Exercise: Trace Feed Gas through Liquefaction
- Suggested Exercise: Balance Storage and Boil-Off Interfaces
- Suggested Exercise: Map Carrier, Terminal, and Custody Handoffs
- Suggested Exercise: Rank Hazards, Barriers, and Data Needs
- Capstone Exercise: Complete the LNG Value Chain Fundamentals Workbook

Practical Exercises

The course uses suggested activities to connect LNG process stages, interfaces, hazards, and commercial handoffs.

- Suggested activity: map natural-gas treatment, liquefaction, storage, loading, transport, unloading, regasification, and distribution.
- Suggested activity: compare LNG with CNG and LPG and identify where cryogenic properties change equipment and handling.
- Suggested activity: trace boil-off gas, inventory, product quality, metering, and custody records across two interfaces.
- Suggested activity: identify hazards, barriers, stakeholders, and information needed for an LNG-chain decision.

FAQs

Who suits LNG fundamentals and value chain training, and what does it assume?

LNG fundamentals training suits graduate engineers, commercial staff, junior operations and maintenance personnel, project teams, supply-chain functions, and support staff. It assumes participants can read basic process and business information.

How do LNG fundamentals differ from advanced terminal operations training?

LNG fundamentals explain the entire chain, key systems, interfaces, hazards, and commercial handoffs. Advanced terminal operations training develops detailed procedures, control responses, maintenance decisions, abnormal-condition management, and operating assurance.

Why is natural gas liquefied for LNG transport?

Natural gas is liquefied to reduce its volume for storage and long-distance transport where pipelines are unavailable or impractical. The product is later regasified for pipeline delivery or use.

What is boil-off gas in LNG storage and shipping?

Boil-off gas is vapor generated as heat enters cryogenic LNG during storage and transport. Systems collect, compress, consume, reliquefy, or otherwise manage it within operating and safety limits.

What stages make up the LNG value chain?

The LNG value chain includes gas production, gathering, processing, feed treatment, liquefaction, storage, loading, marine transport, unloading, receiving-terminal storage, regasification, metering, and distribution to customers.

Conclusion

Participants take back an LNG Value Chain Fundamentals Workbook containing process maps, product comparisons, equipment interfaces, custody handoffs, hazards, barriers, stakeholders, and data needs. The workbook changes separate technical and commercial topics into one traceable chain. It supports onboarding, multidisciplinary coordination, project reviews, supplier discussions, and decisions about further technical or commercial study.

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