

LNG FUNDAMENTALS

This Live Online Training (LOT) course provides a solid foundation to understand the natural gas and LNG businesses by covering relevant technical, commercial, financial and contractual aspects.

March 2021

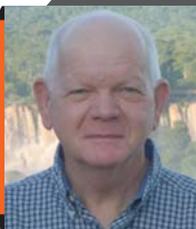
Course Parts will commence at 09:00 and end at 13:00 (AWST). There will be short breaks during each course Part.

Part 1: 17th March Part 2: 18th March Part 3: 19th March Part 4: 24th March Part 5: 25th March Part 6: 26th March

6 Part Series



**Our Expert
Course
Instructor**



Geoffrey Hunter

For the past 18 years Geoff has worked exclusively on LNG projects, including those for ExxonMobil, BHP, Santos and Atlantic LNG, for facilities in Trinidad, Australia and PNG.

Key Learning Objectives

Whether you are a new entrant to the world of LNG, a LNG technical specialist trying to broaden your knowledge, or an investor, attorney, or other professional service provider working with clients in the LNG industry, this Live Online Training (LOT) LNG Fundamentals course will help you to:

- ▶ Understand critical trends in global and regional LNG supply and demand
- ▶ Evaluate main opportunities and risks associated with financing and developing a large-scale LNG project
- ▶ Gain comprehensive technical knowledge in the process flow and major process units, key equipment, infrastructure requirement, and cost factors associated with onshore and floating LNG liquefaction, regasification and storage projects
- ▶ Learn about how technology innovation, new tanker design concepts, market demand, shipping and fuel costs, as well as safety requirements are affecting the state of the global LNG shipping industry
- ▶ Understand the role of LNG in the context of the global gas business and the medium-term outlook
- ▶ Comprehend the key fundamentals that drive global LNG business including Government policies, commercial, technical and financing rationales
- ▶ Demystify LNG pricing and looking at the choices buyers have today in regional markets
- ▶ Understand the entire LNG value chain (from pipeline transportation to the liquefaction facility, liquefaction, storage, loading/unloading, shipping, regasification and distribution) described by step and analysed.
- ▶ Learn about recent developments including; floating LNG, floating LNG power, small-scale LNG and LNG as an alternative transport fuel

LNG FUNDAMENTALS

6 Part Series

March 2021

Course Parts will commence at 09:00 and end at 13:00 (AWST). There will be short breaks during each course Part.

Part 1: 17th March

Part 2: 18th March

Part 3: 19th March

Part 4: 24th March

Part 5: 25th March

Part 6: 26th March

ABOUT THE COURSE

Liquefied Natural Gas (LNG) has provided intercontinental mobility to natural gas. The LNG sector is an industry that is constantly changing as it responds to growing demands in international energy markets, with the LNG value chain linking production fields to markets over vast distances to deliver cleaner-burning natural gas around the world.

LNG continues to increase its share of year-on-year growth in the global natural gas trade and remains one of the fastest growing sectors of the energy industry. Global demand for LNG is increasing and diversifying significantly, particularly in Asia and Europe. An increasing number of new producers, shippers and consumers are becoming directly involved in LNG trade. Many new world-scale projects are under development or expansion.

This Live Online Training (LOT) course provides a solid foundation to understand the natural gas and LNG businesses by covering relevant technical, commercial, financial and contractual aspects. This intensive course provides an understanding of the Liquefied Natural Gas (LNG) sector – from technical details, to market strategies through to commercial issues and future trends impacting the LNG supply chain.

The LOT is relevant for professionals drawn from both technical (project, shipping and production operational) and non-technical (commercial, finance, legal and governance) backgrounds. Participants with expertise in one area of the value chain will benefit from the LOT course by obtaining good grounding in all other relevant areas. Commercial and managerial staff looking for a concise overview; engineers new to the LNG industry; specialists looking to broaden their general knowledge of LNG and staff involved in LNG commerce and interested in LNG technical fundamentals will all benefit.

The course is designed for those looking to gain a better understanding of the fundamentals of the LNG industry – from the technical to the commercial to the strategic. The agenda will focus on LNG liquefaction technology, shipping, regasification facilities and LNG's role in supplying clean energy globally.

The course provides a broad, but integrated, insight to the technologies, the markets, the economics and the risks of the industry with a balance between technical and commercial issues, that are explained in language suitable for a multi-disciplined audience. Extensive use is made of up-to-date data, quality diagrams and recent photographs.

The course is structured in a presentation-style format, with high levels of attendee interaction as delegates will be invited to ask questions and share their views. The course includes references and examples of the current LNG climate.

This LOT will use real-life examples to illustrate the main concepts and possibilities. Discussions to complement the lecture material (using numerous illustrations and photographs) are used to stimulate discussion and deeper analyses will be encouraged.

OUR EXPERT COURSE INSTRUCTOR



Geoffrey Hunter

For the past 18 years Geoff has worked exclusively on LNG projects, including those for ExxonMobil, BHP, Santos and Atlantic LNG, for facilities in Trinidad, Australia and PNG.

During his fulltime working career, Geoff was employed by Atlantic LNG (3 ½ years), Santos (10 years), BHP Petroleum (3 years), Exxon (17 years) and EPC contractors (13+ years).

For the past 6 years he has worked as an independent LNG Consultant, and in that role he has undertaken studies for Australian LNG import, Mozambique LNG export, Western PNG LNG Export and Darwin containerised LNG export projects. For the past 4 years he has donated his time representing Australia on the International Gas Union LNG Committee 2015-2018 and 2018-2021 Triennium Work Programs, contributing to the preparation of the annual World LNG Reports and Study Group reports.

At Santos he established the corporate LNG role (as Chief Advisor LNG Developments). He was Santos' Joint Venture representative for the liquefaction facilities for the Darwin LNG and PNG LNG Projects. He carried out the initial feasibility and site selection studies that resulted in the Gladstone LNG Project (GLNG) and oversaw the dual Pre-FEED studies for the GLNG Project, involving numerous trips to USA and European based LNG contractors. He was closely involved with the PNG LNG Project during its Feasibility, dual Pre-FEED and dual FEED studies, the latter involving several months in Houston as part of the ExxonMobil PNG LNG bid evaluation team for the LNG plant. In his LNG Advisor role at Santos he also carried out studies for Darwin LNG T2 (Sunrise Project), Bonaparte LNG and many small scale and floating LNG developments. In early 2011 he joined Atlantic LNG in Trinidad, working in their 4 train operating LNG plant as Project Support Services Manager for 3 ½ years.

He has studied the international LNG business in depth and remains current with global LNG related developments (including large and small scale facilities for the export, storage, shipping and import of LNG). He prepared and presented LNG Fundamentals courses to Santos staff in Brisbane, Adelaide and Houston, as well as to ExxonMobil staff and PNG Government personnel in Port Moresby and Brisbane. In Trinidad, these courses were also popular with Atlantic LNG staff and their shareholders. In total he has presented more than forty in-house and external 3 Day, 2 Day and 1 Day LNG Fundamentals courses, in addition to preparing a 5 Day external course (and external LNG training for SPE and University of Queensland).

He has broad international experience from living and working in Trinidad, UK, USA, Iraq and West Germany for approximately 13 years (including more than 5 years in USA with ExxonMobil affiliates).

WHO WILL BENEFIT

This course is not a basic level introductory course. It has a specific techno-commercial focus for technical and business oriented professionals who are either new to the LNG industry or experienced in one part but could benefit from a wider perspective.

- Technical (exploration and production, geoscience and engineering).
- Non-technical (commercial, finance, government, marketing and legal) backgrounds.
- Those who have recently joined an LNG market development team with expertise in one area of gas development.

 **Book online**
www.informa.com.au/lngfundamentals

 **Book over the phone**
+61 (02) 9080 4395

 **Book via email**
training@informa.com.au

informa
corporate learning

LNG FUNDAMENTALS

6 Part Series

March 2021

Course Parts will commence at 09:00 and end at 13:00 (AWST). There will be short breaks during each course Part.

Part 1: 17th March Part 2: 18th March Part 3: 19th March Part 4: 24th March Part 5: 25th March Part 6: 26th March

Course Outline

Part 1 - LNG Introduction & Commercial

- What is LNG – provides background and includes an informative video highlighting physical attributes of LNG.
- LNG HSSE – explains specific health, safety and environmental issues associated with LNG, with several incidents covered in detail.
- Global Gas Supply/Demand – provides background and history of both global gas and LNG supply/demand. Discusses LNG versus pipeline trade-offs. Includes current industry generated forecasts of gas and LNG supply/demand.
- LNG Supply Chain – provides details regarding the LNG supply chain (liquefaction, shipping and regasification facilities), including forecasts for long-term and short-term LNG demand.
- Regional markets – explains the different LNG quality, pricing, seasonality and dependency mechanisms in play in the various international LNG markets.
- Provides details regarding current and future LNG sources and project development timetables.
- Explains different forms of LNG contracts and terms (SPAs, MSAs, FOB, DES/DAT, spot/short-term etc).

Part 2 - Unconventional gases, North American & Australian LNG and Generic LNG liquefaction

- Unconventional gas – provides details regarding unconventional gases (shale, tight and coal-seam) and explains technologies involved in their extraction.
- Australian & USA LNG growth.
- Liquefaction processes – provides background to LNG gas pre-treatment and generic liquefaction processes, via diagrams, photographs and technical details. Covers refrigeration compressors, compressor drivers, air versus water cooling (and impact of varying ambient air temperatures), inlet air cooling, duty curves etc.

Part 3 – Air Products, Shell and Statoil/Linde liquefaction processes

- APCI C3MR & AP-X processes - provides information regarding Air Products main LNG liquefaction processes, including details and photographs of their spiral wound main cryogenic heat exchangers.
- APCI plants – includes photographs and technical details for many of the LNG plants that use an APCI liquefaction process.
- Other processes - includes photographs and technical details for LNG plants that use a Shell or the Statoil/Linde liquefaction processes, including details and photographs of the Linde spiral wound main cryogenic heat exchangers.

Part 4 – One APCI C3MR process plant in more detail

- Covers one plant using the APCI C3MR process in more detail - including many photographs and technical details for the plant during construction and initial operation.

Part 5 - ConocoPhillips Optimised Cascade Process (OCP)

- Provides information regarding the ConocoPhillips LNG liquefaction process, including details of brazed aluminium core-in-kettle and main cryogenic heat exchangers/cold boxes.
- CoP plants – includes photographs and technical details for LNG plants that use the CoP liquefaction process.

Part 6 – One CoP OCP plant in more detail

- Covers one plant using the ConocoPhillips Optimised Cascade liquefaction process in more detail - including many photographs and technical details for the plant during construction and initial operation.

Part 7 - Storage tanks

- Provides diagrams, photographs and technical details for the various types of large LNG storage tanks (including aboveground and in-ground) used in LNG export and import facilities.
- Many construction photographs used to show containment, equipment and insulation features.

Part 8 - Loading/unloading facilities

- Provides diagrams, photographs and technical details for the various types of berths, loading arms, loading/vapour return line insulation systems used in LNG export and import facilities.
- Provides diagrams, photographs and technical details of in-tank LNG pumps.
- Berth safety systems - provides diagrams, photographs and technical details for typical berth safety systems.
- Provides photographs and technical details for many of the different types of LNG export and import facility berths.

Part 9 - Shipping

- Containment systems - provides diagrams, photographs and technical details for the various types of containment and insulation systems used in LNG vessels.
- LNG carrier equipment - provides diagrams, photographs and technical details for the typical equipment (such as in-tank pumps) used in LNG vessels.
- Propulsion systems - provides diagrams, photographs and technical details for the different types of propulsion systems in LNG vessels.

- LNG carrier fleet – provides historical data and forecasts of LNG vessel numbers, capacities, containment and propulsion types.
- Discusses Q-Flex and Q-Max ships and provides diagrams, photographs and technical details for these.

Part 10 - Import/regasification terminals

- Provides details regarding typical onshore LNG import terminal equipment and operations.
- Vaporizers - provides diagrams, photographs and technical details for the different types of vaporiser systems used.
- Onshore import terminals - provides photographs and technical details for many of the different types of LNG import facilities.

Part 11 – Floating LNG

- Floating liquefaction, storage and offloading (FLSO) – provides diagrams, photographs and technical details.
- Floating storage and regasification units (FSRU) – provides diagrams, photographs and technical details for many of the FSRU ships that are currently in operation (both conversions and newbuilds).
- Also covers small scale FLSOs and FSRUs – provides diagrams, photographs and technical details.

Part 12 - Small-scale LNG

- Small-scale LNG liquefaction - provides diagrams, photographs and technical details for many of the small-scale LNG liquefaction processes that are currently in operation.
- Peak shaving - explains the concept via diagrams and photographs.
- Vacuum-perlite pressure storage tanks - explains the concept via diagrams and photographs.
- Vaporizers - provides diagrams, photographs and technical details for ambient air vaporiser systems used.
- Satellite LNG - explains the concept via diagrams and photographs of these facilities in various countries.
- Virtual pipelines - explains the concept via diagrams and photographs of these small scale LNG export/transport/import facilities in Norway, China and Australia.
- Small LNG ships - provides diagrams, photographs and technical details for the different types of containment and propulsion systems used for small LNG vessels.
- LNG as transport fuel (trucks, trains and ships) - describes many of the uses of LNG for fuel, via diagrams and photographs.

LNG FUNDAMENTALS

6 Part Series

March 2021

Course Parts will commence at **09:00** and end at **13:00 (AWST)**. There will be short breaks during each course Part.

Part 1: **17th March** Part 2: **18th March** Part 3: **19th March** Part 4: **24th March** Part 5: **25th March** Part 6: **26th March**

Easy Ways to Register

1 Web
www.informa.com.au/lngfundamentals

2 Telephone
+61 (02) 9080 4395

3 Email
training@informa.com.au

Learn Anywhere, Learn Anytime

Catering to meet all your learning needs:

- Get **high quality** practical training from our expert instructors
- From **Face To Face, Online** and **Blended Learning**, get a superior solution for your learning needs
- Learn **live online** in an interactive environment
- **Invest** in yourself. Invest in your team.

Register today for our **Live Online Training** courses and find out how they can help you transform the way you work. Contact one of our training consultants on training@informa.com.au to find out more.

LNG Fundamentals

Course Code	Location	Course Parts	Month	Standard Price	4+ Dels Discount
P21GR23PEV	Live Online Training	All 6 Parts	March 21	\$3,395 + \$339.50 GST	\$3,734.50 Great Savings: When you book 4 or more participants! Call us today on +61 (2) 9080 4395 or email training@informa.com.au to take advantage of the discount offer.

Privacy Policy & Updating your Details:

Please visit us online at www.informa.com.au/privacy for a full privacy policy. Database amendments can be sent to database@informa.com.au or phone **+61 (0) 2 9080 4017**. **ABN: 66 086 268 313**

Informa Corporate Learning – On-site & Customised Training

Informa Corporate Learning has a long-standing track record of delivering very successful customised learning solutions achieving real and measurable value for our clients through our senior training consultants.

If you have 8+ interested people, an on-site course can be the ideal solution – giving you the opportunity to customise our course content to your specific training needs, as well as attracting significant savings compared to public course costs.

Why Choose On-site With Informa Corporate Learning?

- 1. Custom design** – Together, we will identify the best blended learning solution for your culture, your people and your training objectives.
- 2. Quality Assured** – We design market-leading training programs, concepts and methodologies, with a 400+ course portfolio. Our rigorously selected 900+ instructor faculty are recognised experts in their field. Quality of their content and delivery methods is assured through continuous monitoring and evolution.
- 3. On-site training** is a cost effective way to train your people and achieve your defined outcomes.

Our Long Standing Clients Include:

ActewAGL, Ajilon, Ambulance Victoria, ANU, Arrow Energy, Australian Super, Barrick, BHP, Chevron Australia, Coffey International, ConocoPhillips, CSIRO, Dalrymple Bay Coal Terminal, Department of Education, Department of Planning, Electricity Generating Authority of Thailand (EGAT), ENI Australia, EY, Fortescue Metals Group, Health Purchasing Victoria, IBM, IP Australia, Jemena, Litmus Group, Metro Trains, Office of the National Rail Safety Regulator, Origin Energy, Pacific National, PT Freeport, Public Transport Authority – WA, QGC – BG Group, Queensland Rail, Rio Tinto, Romgaz, SA, South Australia Health, Telstra, Transport & Infrastructure, UBS, Woodside and more...

Speak with **Anton Long** or **Holly Baldwin** on **+61 (02) 9080 4455** to discuss your customised learning solution, or email training@informa.com.au