

# Fundamentals of the Liquefied Natural gas (LNG) supply chain

8-11 November 2010, London, UK



El member £2,585.00 inc VAT Non-member £2,820.00 inc VAT\*  
\*includes complimentary Affiliate membership to the Energy Institute

This course addresses the key technical, commercial and contractual issues impacting the LNG supply chain. 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.

Modern technologies and increasing infrastructure have enabled LNG to emerge from a strategic energy source into one that can now compete in terms of price and supply with pipeline gas in many regions of the world. Global demand for gas and LNG is increasing and diversifying significantly, particularly in Asia, United States and Europe. An increasing number of new producers, contractors and consumers are becoming directly involved in LNG trade. Many new world-scale projects are under development or expansion. These developments offer huge opportunities for the petroleum companies, contractors and suppliers that understand and can exploit the unique and evolving technical, commercial and risk issues associated with the industry.

LNG supply chain segments extend from gas field development, liquefaction processes, shipping, re-gasification, storage, and finally to its supply to power generators and gas distribution networks. There are embedded short-term and long-term opportunities for LNG within existing natural gas markets. Key features of LNG contracts, price indexation, project finance and economic valuation are also examined as part of this course.

To place LNG in context, gas monetisation alternatives involving pipelines, gas to liquids (GTL), compressed natural gas (CNG) and other potential technologies are reviewed and contrasted.

The course differs from other LNG and gas courses in providing a broad, but integrated, insight to the technologies, the markets, the economics, the risks and the financing issues of the industry with an even balance between technology and commercial issues that is explained in non-technical language suitable for a multi-disciplined audience. Extensive use of is made of short videos from a range of sources to supplement PowerPoint presentations, case studies and group exercises.

## Course content:

### Day one – Supply chain, history, process, costs and markets

- Basic LNG industry facts and its supply chain
- Market segments, trends and forecasts for the industry
- Competition LNG versus gas by pipelines
- History and evolution of the LNG industry and markets
- Japan LNG markets: long-term and short-term LNG trade and pricing
- LNG pioneers: Algeria, Alaska and Indonesia
- Long-term and short-term trade and pricing
- Liquefaction process options and plant capacities
- Characteristics of Pacific and Atlantic Basin markets
- Liquefaction plant cost components, trends and implications for the future
- Phases of technology improvement and cost reduction
- Re-gasification technologies, costs and developments

### Day two – Economics, shipping, storage, and strategies

- Economics of the LNG supply chain
- The impact of LNG on European Union
- LNG shipping technology and market evolution
- LNG storage, stock and throughput issues
- Price indexation and netback pricing
- Offshore liquefaction and receiving terminals
- Booming US LNG market and facilities developments
- Liquefaction project development: Sakhalin II - Russia
- Project planning, FEED and EPIC contracting of liquefaction plants
- Operating LNG project: Atlantic LNG Trinidad and Tobago
- North African operating LNG projects: Algeria and Libya
- LNG project under development: Norway - Snøhvit
- North African LNG project under development: Egypt
- Peak shaving operations and receiving terminals within UK

### Day three – Contracts, safety, finance and project examples

- LNG project and supply contract structures and drivers
- Potential new liquefaction project in Alaska - LNG versus pipeline

- Environmental and safety issues and developments for LNG facilities
- Gas-to-liquids offers diversification to some LNG suppliers
- LNG opportunities to supply power generation projects
- Spark spreads and competition from competing fuels
- Expanding liquefaction projects in Nigeria and Equatorial Guinea
- Evolving liquefaction projects: Angola and Peru
- LNG developments contrasted for Oman and Yemen
- Operating and future LNG projects in Australia
- Developing markets for LNG sales to China and India
- Liquefaction projects in Qatar, Abu Dhabi, Malaysia, Indonesia and Brunei
- Slow but tantalising progress for liquefaction projects in Venezuela and Iran
- Challenges for LNG Buyers such as Turkey and Korea

### Day 4 – Monetisation options for remote gas: potential threats to LNG?

- Technical and geopolitical issues for exploitation of stranded gas reserves
- Gas-to-liquid (GTL) technologies, product quality and markets
- Fischer-Tropsch (FT) synthesis processes and providers
- Economic viability of FT-GTL, costs and economies of scale
- FT-GTL case studies (Malaysia, Qatar and South Africa)
- Synthesis gas (Syngas) as a route to a range of useful liquids
- Methanol, Dimethyl Ether (DME) and Formaldehyde
- Catalysts, pilot plants, technical developments
- Compressed natural gas (CNG) technologies for bulk gas transportation
- Gas to wire: using high voltage direct current (HVDC) technology
- Coal and bio-mass gasification technologies
- Gas to solids: a potentially useful role for gas hydrates
- Natural gas as a source of hydrogen in a future gas economy

### Who should attend?

The course is pitched to appeal to professionals from a large range of technical and commercial backgrounds and with varying levels of experience. There is a broad skill-set required for companies operating across the LNG and gas supply chains that includes: petroleum, process and marine engineers, economics and commercial analysts, risk managers, contract, legal, strategic planning and finance professionals. This course is designed to address that skill-set and, with the aid of case studies, provide a global perspective to the industry, presenting numerous international case studies that illustrate rapidly evolving opportunities to monetise gas. Technical sections of the course are presented in non-technical language to accommodate a multi-disciplined audience.

For more information please contact Nick Wilkinson  
t: +44 (0)20 7467 7100 f: +44 (0)20 7255 1472  
e: [nwilkinson@energyinst.org](mailto:nwilkinson@energyinst.org)  
[www.energyinst.org](http://www.energyinst.org)



# Registration form

To register, by post or fax, please complete this registration form in BLOCK CAPITALS and return it to the address below, together with payment of all fees.

Nick Wilkinson, EI Oil and Gas Training, Energy Institute, 61 New Cavendish Street, London W1G 7AR, UK  
 f: +44 (0)20 7255 1472

To register by email, please provide the same contact details (shown below), together with the relevant course details and send to: [nwilkinson@energyinst.org](mailto:nwilkinson@energyinst.org) To book online, visit: [www.energyinst.org](http://www.energyinst.org)

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# General information

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## Acknowledgement of registration

Confirmation of registration and a VAT receipt will be sent to all delegates. Joining instructions will be sent out prior to the start date of the course. If you have not received your acknowledgement seven days prior to the start date of the course, please contact EI Oil and Gas Training at the Energy Institute to confirm your booking.

## Language and course materials

All presentations, course materials and supporting documentation will be presented in English.

## Cancellation

In the event of a delegate cancelling, a refund of the registration fee less a 20% administration charge will be made provided that notice is received in writing at least 28 days before the date of the course. No refunds will be paid after that date. However, course papers, as supplied to attendees, will be provided after the event.

## Substitution

If you are unable to attend, a substitute delegate may attend in your place, provided that EI Oil and Gas Training is notified in advance.

## Enquiries

EI Oil and Gas Training,  
Energy Institute, 61 New Cavendish Street,  
London W1G 7AR, UK  
t: +44 (0)20 7467 7100 f: +44 (0)20 7255 1472  
e: [nwilkinson@energyinst.org](mailto:nwilkinson@energyinst.org)  
[www.energyinst.org](http://www.energyinst.org)

## About the course provider

The Energy Institute (EI) is the leading professional body for the energy industries, representing almost 12,000 professionals both nationally and internationally.

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